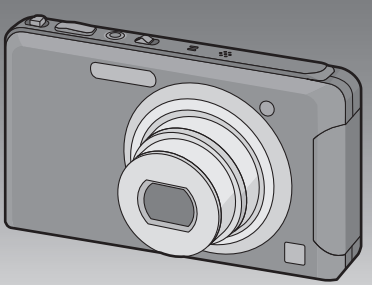
Panasonic

Owner's Manual for advanced features

Digital Camera

Model No. DMC-FX90

LUMIX



Before connecting, operating or adjusting this product, please read the instructions completely.

VQT3S36-1

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Care of the camera

Do not subject to strong vibration, shock, or pressure.



- The lens, LCD monitor, or external case may be damaged if used in following conditions.
  It may also malfunction or image may not be recorded.
  – Drop or hit the camera.
  – Sit down with the camera in your trousers pocket or forcefully insert it into a full or tight bag, etc.
  – Attach any items such as accessories to the strap attached to the camera.
  – Press hard on the lens or the LCD monitor.

This camera is not dust/splash/water proof.
Avoid using the camera at location with a lot of dust, water, sand, etc.

- Liquid, sand and other foreign material may get into the space around the lens, buttons, etc. Be particularly careful since it may not just cause malfunctions, but it may become unrepairable.
  – Places with a lot of sand or dust.
  – Places where water can come into contact with this unit such as when using it on a rainy day or on the beach.

■ About Condensation (When the lens or the LCD monitor is fogged up)



- Condensation occurs when the ambient temperature or humidity changes. Be careful of condensation since it causes lens or LCD monitor stains, fungus and camera malfunction.
- If condensation occurs, turn the camera off and leave it for about 2 hours. The fog will disappear naturally when the temperature of the camera becomes close to the ambient temperature.

■ This camera cannot be exported or taken to countries that have a United States embargo imposed.

- Export Administration Regulation (EAR) applies to this camera as it contains encryption software developed in the United States.

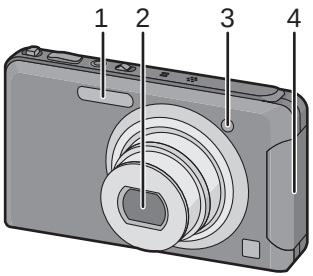
Standard Accessories

Check that all the accessories are supplied before using the camera.

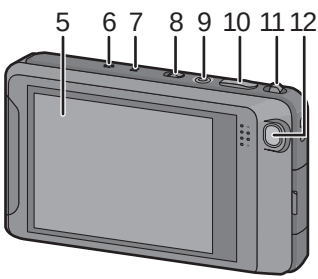
- The accessories and their shape will differ depending on the country or area where the camera was purchased.
  For details on the accessories, refer to Basic Owner's Manual.
- Battery Pack is indicated as **battery pack** or **battery** in the text.
- Battery Charger is indicated as **battery charger** or **charger** in the text.
- SD Memory Card, SDHC Memory Card and SDXC Memory Card are indicated as **card** in the text.
- **The card is optional.**
  You can record or play back pictures on the built-in memory when you are not using a card.
- If any accessories are lost, customers in the USA and Puerto Rico should contact Panasonic's parts department at 1-800-833-9626 and customers in Canada should contact 1-800-99-LUMIX (1-800-995-8649) for further information about obtaining replacement parts.

Names and Functions of Main Parts

1 Flash (P73)
2 Lens (P5, 164)
3 Self-timer indicator (P76)
AF Assist Lamp (P91)
4 Wi-Fi® Transmitter (P125)

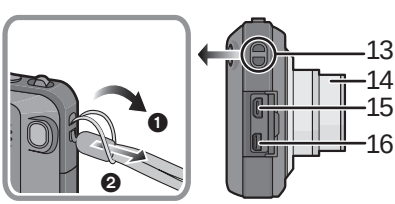


5 Touch panel/LCD monitor (P8, 49, 161)
6 Speaker (P41)
7 Microphone
8 Camera ON/OFF switch (P17)
9 Motion picture button (P27)
10 Shutter button (P21, 24)
11 Zoom lever (P53)
12 [Wi-Fi] button (P141)

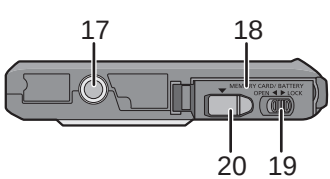


13 Strap eyelet
- Be sure to attach the strap when using the camera to ensure that you will not drop it.

14 Lens barrel
15 [HDMI] socket (P144, 146)
16 [AV OUT/DIGITAL] socket (P144, 151, 154, 157)



17 Tripod receptacle
18 Card/Battery door (P12)
19 Release lever (P12)



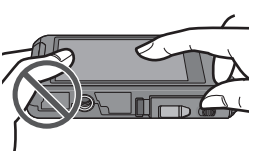
20 DC coupler cover (P13)
- When using an AC adaptor, ensure that the Panasonic DC coupler (For shop display purpose only) and AC adaptor (optional) are used. For connection details, refer to P13.

How to Use the Touch Panel

This touch panel is a type that detects pressure.

Touch the screen To touch and release the touch panel.	**Drag** A movement without releasing the touch panel.
	
Use this to perform tasks such as selecting icons or images displayed on the touch panel. • It may not operate properly when multiple icons are touched simultaneously, so try to touch the center of the icon.	This is used when performing tasks such as moving to the next image by dragging horizontally, or changing the range of the displayed image. This can also be used to perform tasks such as switching the screen by operating the slide bar.

Note

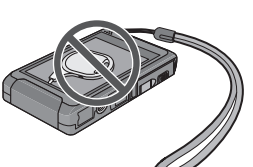


- If you use a commercially available liquid crystal protection sheet, please follow the instructions that accompany the sheet. (Some liquid crystal protection sheets may impair visibility or operability.)
- **Apply a little extra pressure** when touching if you have a commercially available protection sheet affixed or if you feel it is not responding well.
- Touch panel will not operate properly when the hand holding this unit is pressing on the touch panel.
- Do not press using anything with a sharp tip or anything hard, except for the supplied stylus pen.
- Do not operate with your fingernails.
- Do not scratch or press the LCD monitor too hard.
- Wipe the LCD monitor with dry soft cloth when it gets dirty with finger prints and others.
- For information about the icons displayed on the touch panel, refer to “Screen Display” on P161.

■ About the Stylus pen

It is easier to use the stylus pen (supplied) for detailed operation or if it is hard to operate with your fingers.

- Do not place it where small children can reach.
- Do not place the stylus pen on the LCD monitor when storing. LCD monitor may break when the stylus pen is pressed strongly against the LCD monitor.



Charging the Battery

■ **About batteries that you can use with this unit**

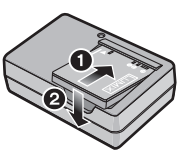
It has been found that counterfeit battery packs which look very similar to the genuine product are made available to purchase in some markets. Some of these battery packs are not adequately protected with internal protection to meet the requirements of appropriate safety standards. There is a possibility that these battery packs may lead to fire or explosion. Please be advised that we are not liable for any accident or failure occurring as a result of use of a counterfeit battery pack. To ensure that safe products are used we would recommend that a genuine Panasonic battery pack is used.

• Use the dedicated charger and battery.

Charging

• The battery is not charged when the camera is shipped. Charge the battery before use.
• Charge the battery with the charger indoors.

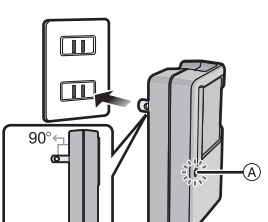
1 **Attach the battery paying attention to the direction of the battery.**



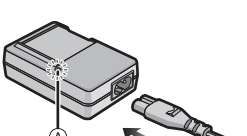
2 **Connect the charger to the electrical outlet.**

• The [CHARGE] indicator Ⓐ lights up and charging begins.

plug-in type



inlet type



■ About the [CHARGE] indicator

The [CHARGE] indicator turns on:
The [CHARGE] indicator is turned on during charging.

The [CHARGE] indicator turns off:
The [CHARGE] indicator will turn off once the charging has completed without any problem. (Disconnect the charger from the electrical socket and detach the battery after charging is completed.)

- **When the [CHARGE] indicator flashes**
  – The battery temperature is too high or too low. It is recommended to charge the battery again in an ambient temperature of between 10 °C and 30 °C (50 °F and 86 °F).
  – The terminals of the charger or the battery are dirty. In this case, wipe them with a dry cloth.

■ Charging time

Charging time	Approx. 120 min

- **The indicated charging time is for when the battery has been discharged completely. The charging time may vary depending on how the battery has been used. The charging time for the battery in hot/cold environments or a battery that has not been used for long time may be longer than normal.**

■ Battery indication

The battery indication is displayed on the LCD monitor.



- The indication turns red and blinks if the remaining battery power is exhausted. Recharge the battery or replace it with a fully charged battery.

Note

- **Do not leave any metal items (such as clips) near the contact areas of the power plug. Otherwise, a fire and/or electric shocks may be caused by short-circuiting or the resulting heat generated.**
- The battery becomes warm after using it and during and after charging. The camera also becomes warm during use. This is not a malfunction.
- The battery can be recharged even when it still has some charge left, but it is not recommended that the battery charge be frequently topped up while the battery is fully charged. (Since characteristic swelling may occur.)

Approximate operating time and number of recordable pictures

■ Recording still pictures

Number of recordable pictures	**Approx. 200 pictures**	By CIPA standard in Normal Picture Mode
Recording time	**Approx. 100 min**	

Recording conditions by CIPA standard

- CIPA is an abbreviation of [Camera & Imaging Products Association].
- Temperature: 23 °C (73.4 °F)/Humidity: 50%RH when LCD monitor is on.
- Using a Panasonic SD Memory Card (32 MB).
- Using the supplied battery.
- Starting recording 30 seconds after the camera is turned on. (When the Optical Image Stabilizer function is set to [On].)
- **Recording once every 30 seconds** with full flash every second recording.
- Changing the zoom magnification from Tele to Wide or vice versa in every recording.
- Turning the camera off every 10 recordings and leaving it until the temperature of the battery decreases.

The number of recordable pictures varies depending on the recording interval time. If the recording interval time becomes longer, the number of recordable pictures decreases. [For example, if you were to take one picture every two minutes, then the number of pictures would be reduced to approximately one-quarter of the number of pictures given above (based upon one picture taken every 30 seconds).]

■ Recording motion pictures (When using the LCD monitor)

	[AVCHD] (Recording with picture quality set to [FSH])	**[MP4]** (Recording with picture quality set to [FHD])
Recordable time	**Approx. 60 min**	**Approx. 60 min**
Actual recordable time	**Approx. 30 min**	**Approx. 30 min**

- These times are for an ambient temperature of 23 °C (73.4 °F) and a humidity of 50%RH. Please be aware that these times are approximate.
- Actual recordable time is the time available for recording when repeating actions such as switching the power supply [ON]/[OFF], starting/stopping recording, zoom operation etc.
- Maximum time to record motion pictures continuously with [AVCHD] is 29 minutes 59 seconds. (excluding when [SH] is set)
- Maximum time to record motion pictures continuously with [MP4] is 29 minutes 59 seconds. Also, motion picture recorded continuously in [MP4] is up to 4 GB. The maximum available recording time continuously is displayed on the screen.

■ Playback

Playback time	**Approx. 150 min**

Note

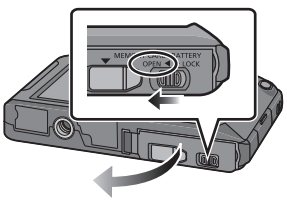
- **The operating times and number of recordable pictures will differ according to the environment and the operating conditions.**
  For example, in the following cases, the operating times shorten and the number of recordable pictures is reduced.
  – In low-temperature environments, such as on ski slopes.
  – When using [LCD Mode].
  – When operations such as flash and zoom are used repeatedly.
- When the operating time of the camera becomes extremely short even after properly charging the battery, the life of the battery may have expired. Buy a new battery.

Inserting and Removing the Card (optional)/the Battery

- Check that this unit is turned off.
- We recommend using a Panasonic card.

1 **Slide the release lever in the direction of the arrow and open the card/battery door.**

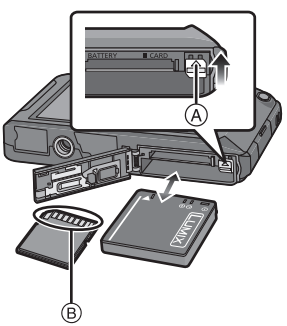
- **Always use genuine Panasonic batteries.**
- **If you use other batteries, we cannot guarantee the quality of this product.**



2 **Battery: Being careful about the battery orientation, insert all the way until you hear a locking sound and then check that it is locked by lever Ⓐ.**
Pull the lever Ⓐ in the direction of the arrow to remove the battery.

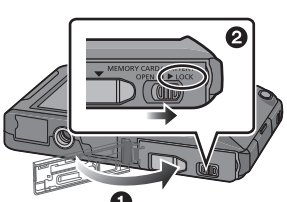
Card: Push it securely all the way until you hear a "click" while being careful about the direction in which you insert it. To remove the card, push the card until it clicks, then pull the card out upright.

Ⓑ: Do not touch the connection terminals of the card.



3 **❶:Close the card/battery door.**

❷:Slide the release lever in the direction of the arrow.

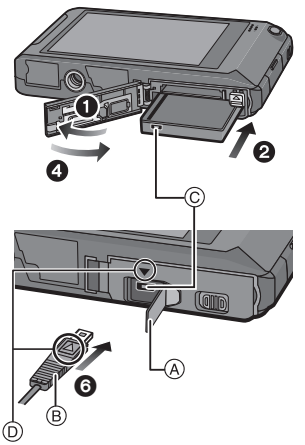


Note

- Remove the battery after use. (The battery will be exhausted if left for a long period of time after being charged.)
- Turn the camera off and wait for the "LUMIX" display on the LCD monitor to clear before removing the card or battery. (Otherwise, this unit may no longer operate normally and the card itself may be damaged or the recorded pictures may be lost.)

Using an AC adaptor (optional) and a DC coupler (For shop display purpose only) instead of the battery

The AC Adaptor (optional) can only be used with the designated Panasonic DC coupler (For shop display purpose only). The AC adaptor (optional) cannot be used by itself.



❶ Open the card/battery door.
❷ Insert the DC coupler, being careful of the direction.
❸ Open the DC coupler cover Ⓐ.
  • Push open the coupler cover from the interior.
❹ Close the card/battery door.
  • Ensure that the card/battery door is closed.
❺ Plug the AC adaptor into an electrical outlet.
❻ Connect the AC adaptor Ⓑ to the [DC IN] socket Ⓒ of the DC coupler.

Ⓓ Align the marks and insert.
• Ensure that only the AC adaptor and DC coupler for this camera are used. Using any other equipment may cause damage.

Note
• Always use a genuine Panasonic AC adaptor (optional).
• When using an AC adaptor, use the AC cable supplied with the AC adaptor.
• Some tripods cannot be attached when the DC coupler is connected.
• Make sure to unplug the AC adaptor when you open the card/battery door.
• If the AC adaptor and DC coupler are not necessary, then remove them from the digital camera. Also, please keep the DC coupler cover closed.
• Also read the operating instructions for the AC adaptor and DC coupler.

About the Built-in Memory/the Card

The following operations can be performed using this unit.



- **When a card has not been inserted: Pictures can be recorded on the built-in memory and played back.**
- **When a card has been inserted: Pictures can be recorded on the card and played back.**
- **When using the built-in memory**
  [IN]→[IN] (access indication*)
- **When using the card**
  [] (access indication*)

* The access indication is displayed in red when pictures are being recorded on the built-in memory (or the card).

Built-in Memory

- **You can copy the recorded pictures to a card.** **(P112)**
- **Memory size: Approx. 70 MB**
- The access time for the built-in memory may be longer than the access time for a card.

Card

The following cards which conform to the SD video standard can be used with this unit. (These cards are indicated as **card** in the text.)

	Remarks
SD Memory Card (8 MB to 2 GB)	• **Use a card with SD Speed Class* with "Class 4" or higher when recording motion pictures.** • SDHC Memory Card can be used with SDHC Memory Card or SDXC Memory Card compatible equipment. • SDXC Memory Card can only be used with SDXC Memory Card compatible equipment. • Check that the PC and other equipment are compatible when using the SDXC Memory Cards. **http://panasonic.net/avc/sdcard/information/SDXC.html** • Only the cards with capacity listed left can be used.
SDHC Memory Card (4 GB to 32 GB)	
SDXC Memory Card (48 GB, 64 GB)	

* SD Speed Class is the speed standard regarding continuous writing. Check via the label on the card, etc.

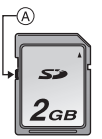
e.g.:

CLASS 4 4

- Please confirm the latest information on the following website.
  http://panasonic.jp/support/global/cs/dsc/
  (This Site is English only.)

Note

- **Do not turn this unit off, remove its battery or card, or disconnect the AC adaptor (optional) when the access indication is lit (when pictures are being written, read or deleted, or the built-in memory or the card is being formatted). Furthermore, do not subject the camera to vibration, impact or static electricity.**
  The card or the data on the card may be damaged, and this unit may no longer operate normally.
  If operation fails due to vibration, impact or static electricity, perform the operation again.
- Write-Protect switch Ⓐ provided (When this switch is set to the [LOCK] position, no further data writing, deletion or formatting is possible. The ability to write, delete and format data is restored when the switch is returned to its original position.)



- The data on the built-in memory or the card may be damaged or lost due to electromagnetic waves, static electricity or breakdown of the camera or the card. We recommend storing important data on a PC etc.
- Do not format the card on your PC or other equipment. Format it on the camera only to ensure proper operation. (P47)
- Keep the Memory Card out of reach of children to prevent swallowing.

Approximate number of recordable pictures and available recording time

■ About the display of the number of recordable pictures and available recording time

• You can confirm the number of recordable pictures and available recording time by touching [DISP.] several times. (P49)

Ⓐ Number of recordable pictures
Ⓑ Available recording time



• The number of recordable pictures and the available recording time are an approximation. (These vary depending on the recording conditions and the type of card.)
• The number of recordable pictures and the available recording time varies depending on the subjects.

■ Number of recordable pictures

• [+99999] is displayed if there are more than 100,000 pictures remaining.

Aspect ratio [4:3], Quality [▪▪▪]

Picture size	Built-in Memory (Approx. 70 MB)	2 GB	32 GB	64 GB
12M	11	380	6260	12670
5M(EZ)	19	650	10620	21490
0.3M(EZ)	310	10050	162960	247150

■ Available recording time (when recording motion pictures)

• “h” is an abbreviation for hour, “m” for minute and “s” for second.

[AVCHD]

Recording quality setting	Built-in Memory (Approx. 70 MB)	2 GB	32 GB	64 GB
FSH	–	14m00s	4h10m	8h27m
SH	–	14m00s	4h10m	8h27m

[MP4]

Recording quality setting	Built-in Memory (Approx. 70 MB)	2 GB	32 GB	64 GB
FHD	–	12m18s	3h23m14s	6h51m13s
HD	–	23m30s	6h28m	13h5m5s
VGA	1m19s	51m43s	14h13m55s	28h47m50s

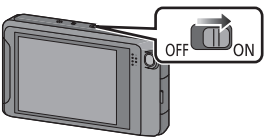
Note

• When selecting images to upload to the WEB service, The number of recordable pictures and the available recording time that can be recorded on the card may decrease.
• Maximum time to record motion pictures continuously with [AVCHD] is 29 minutes 59 seconds. (excluding when [SH] is set)
• Maximum time to record motion pictures continuously with [MP4] is 29 minutes 59 seconds. Also, motion picture recorded continuously in [MP4] is up to 4 GB. The maximum available recording time continuously is displayed on the screen.

Setting Date/Time (Clock Set)

• The clock is not set when the camera is shipped.

1 **Turn the camera on.**

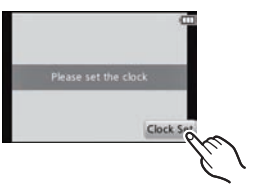


- If the language select screen is not displayed, proceed to step **4**.

2 **Touch [Language Set].**

3 **Select the language, and then touch [Set].**

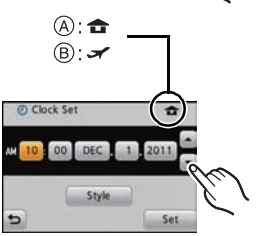
4 **Touch [Clock Set].**



5 **Touch the items you wish to set (Year/Month/Day/Hours/Minutes), and set using [▲]/[▼].**

Ⓐ: Time at the home area
Ⓑ: Time at the travel destination

- You can continue to switch the settings by continuously touching [▲]/[▼].
- Touch [↩] to cancel the date and time settings without setting a date and time.



To set the display order and the time display format.

- Touch [Style] to display the settings screen for setting display order/time display format.



6 **Touch [Set] to set.**

7 **Touch [Set] in the confirmation screen.**

Changing the Clock Setting

Select [Clock Set] in the [Rec] or [Setup] menu. **(P36)**

- The clock can be reset as shown in steps **5** and **6**.
- **The clock setting is maintained for 3 months using the built-in clock battery even without the battery. (Leave the charged battery in the unit for 24 hours to charge the built-in battery.)**

Note

- If the clock is not set, the correct date cannot be printed when you order a photo studio to print the picture, or when you stamp the date on the pictures with [Date Stamp] or [Text Stamp].
- If the clock is set, the correct date can be printed even if the date is not displayed on the screen of the camera.

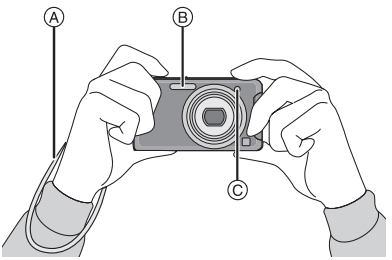
Tips for taking good pictures

Fit the strap and hold the camera carefully

Hold the camera gently with both hands, keep your arms still at your side and stand with your feet slightly apart.

- **To prevent dropping, be sure to attach the supplied strap and fit it to your wrist. (P7)**
- Be careful not to move the camera when you press the shutter button.
- Be careful not to put your fingers on the flash, AF assist lamp, microphone, speaker or lens etc.

Ⓐ Strap
Ⓑ Flash
Ⓒ AF assist lamp



■ Direction Detection Function ([Rotate Disp.])

Pictures recorded with the camera held vertically are played back vertically (rotated). (Only when [Rotate Disp.] (P47) is set)

- When the camera is held vertically and tilted up and down to record pictures, the Direction Detection function may not work correctly.
- Motion pictures taken with the camera held vertically are not displayed vertically.
- You cannot record 3D pictures in vertical orientation.

Preventing jitter (camera shake)

When the jitter alert [((📷))] appears, use [Stabilizer] (P92), a tripod or the Self-timer (P76).

- Shutter speed will be slower particularly in the following cases. Keep the camera still from the moment the shutter button is pressed until the picture appears on the screen. We recommend using a tripod.
  – Slow sync./Red-Eye Reduction
  – In [Panorama Assist], [Night Portrait], [Night Scenery], [Party], [Candle Light], [Starry Sky], [Fireworks], [High Dynamic] in Scene Mode
  – When the shutter speed is slowed in [Min. Shtr Speed]

Selecting the [Rec] Mode

1 **In Recording Mode touch [ ].**

- When operating in Playback Mode, touch [ ] to switch to Recording Mode and then touch [ ].



2 **Touch the Recording Mode icon.**



■ **List of [Rec] Modes**

	Normal Picture Mode (P21)
The subjects are recorded using your own settings.	
iA	**Intelligent Auto Mode** (P24)
The subjects are recorded using settings automatically selected by the camera.	
SCN	**Scene Mode** (P56)
This allows you to take pictures that match the scene being recorded.	
3D	**3D Photo Mode** (P66)
Takes a 3D picture.	
	Cosmetic Mode (P67)
Takes a picture adjusting the skin texture.	

Note

- When the mode has been switched from [Playback] Mode to [Rec] Mode, the previously set [Rec] Mode will be set.

[Rec] Mode:

Taking Pictures with Your Favorite Settings
(Normal Picture Mode)

The camera automatically sets the shutter speed and the aperture value according to the brightness of the subject.
You can take pictures with greater freedom by changing various settings in the [Rec] menu.

1 **In Recording Mode touch [ ].**

2 **Touch [ ].**

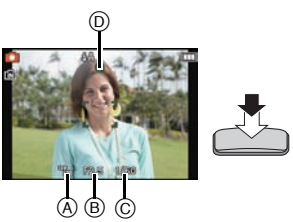


3 **Aim the AF area at the point you want to focus on.**

4 **Press the shutter button halfway to focus.**

Ⓐ ISO sensitivity
Ⓑ Aperture value
Ⓒ Shutter speed

- The focus indication Ⓓ (green) lights when the subject is focused.
- The minimal distance (how close you can be to the subject) will change depending on the zoom factor. Please check with the recordable range display on the screen. (P22)
- Aperture value and shutter speed is displayed in red when correct exposure is not achieved. (Exclude when using a flash)

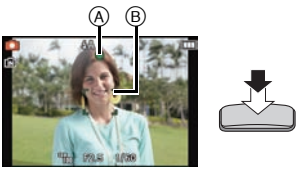


5 **Press the shutter button fully (push it in further), and take the picture.**



Focusing

Aim the AF area at the subject, and then press the shutter button halfway.

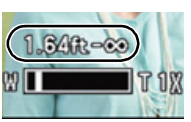


Focus	When the subject is focused	When the subject is not focused
Focus indication Ⓐ	On	Blinks
AF area Ⓑ	White→Green	White→Red
Sound	Beeps 2 times	Beeps 4 times

• AF area is displayed larger during the digital zoom or when it is dark.

■ About focus range

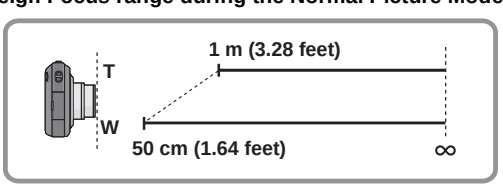
The focus range is displayed when operating the zoom.



• The focus range is displayed in red when it is not focused after pressing the shutter button halfway.

The focus range may change gradually depending on the zoom position.

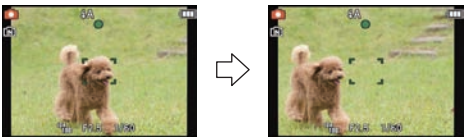
e.g.: Focus range during the Normal Picture Mode



■ **When the subject is not in focus (such as when it is not in the center of the composition of the picture you want to take)**

1 **Aim the AF area at the subject, and then press the shutter button halfway to fix the focus and exposure.**

2 **Press and hold the shutter button halfway while moving the camera as you compose the picture.**



• You can repeatedly retry the actions in step **1** before pressing the shutter button fully.

■ **Subjects and recording conditions which are difficult to focus**

• Fast-moving subjects, extremely bright subjects or subjects without contrast
• When recording subjects through windows or near shiny objects
• When it is dark or when jitter occurs
• When the camera is too close to the subject or when taking a picture of both distant and near subjects

[Rec] Mode: iA

Taking Pictures Using the Automatic Function
(Intelligent Auto Mode)

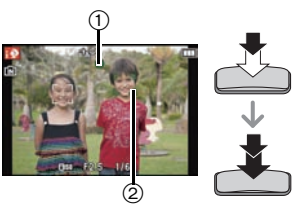
The camera will set the most appropriate settings to match the subject and the recording conditions so we recommend this mode for beginners or those who want to leave the settings to the camera and take pictures easily.

- The following functions are activated automatically.
  - Scene Detection/Backlight Compensation/Intelligent ISO sensitivity control/Auto White Balance/Face Detection/[Quick AF]/[i.Exposure]/[i.Resolution]/[i.Zoom]/[AF Assist Lamp]/[Red-Eye Removal]/[Stabilizer]/[Continuous AF]
- Image quality is fixed to [▪▪▪].

1 In Recording Mode touch [ ].

2 Touch [iA].

3 Press the shutter button halfway to focus and then press it fully to take the picture.



① Focus indication

- The AF area ② is displayed around the subject's face by the Face Detection function. In other cases, it is displayed at the point on the subject which is in focus.
- When the subject is touched, AF Tracking function works. For details, refer to P51.

Changing the settings

Following menus can be set.

Menu	Item
[Rec]	[Flash]*/[Selftimer]/[Picture Size]*/[Burst]/[Color Mode]*/ [Motion Deblur]/[Face Recog.]
[Motion Picture]	[Rec Mode]/[Rec Quality]
[Setup]	[Clock Set]/[World Time]/[Beep]*/[Language]/[Stabilizer Demo.]

• For the setting method of the menu, refer to P36.
* Settings may be different from other [Rec] Modes.

• **Menus specific to Intelligent Auto Mode**
– Color setting of [Happy] is available in [Color Mode]. It is possible to automatically take a picture with a higher level of brilliance for the color brightness and vividness.
– When [Motion Deblur] is set to [On], [((●))] is displayed on the recording screen. The camera automatically sets an optimal shutter speed according to the motion of the subject to reduce blur on the subject. (In such a case, the number of pixels may be reduced.)

■ About the flash

• When [iA] is selected, [iA], [iA], [iS] or [iS] is set depending on the type of subject and brightness.
• When [iA] or [iS] is set, Digital Red-Eye Correction is enabled.
• Shutter speed will be slower during [iS] or [iS].

Scene Detection

When the camera identifies the optimum scene, the icon of the scene concerned is displayed in blue for 2 seconds, after which its color changes to the usual red.

When taking pictures

→	[i-Portrait]	[i-Scenery]	
	[i-Macro]	[i-Night Portrait]*1	
	[i-Night Scenery]	[i-Sunset]	
	[i-Baby]*2		

*1 Only when [ ] is selected.
*2 When [Face Recog.] is set to [On], [ ] will be displayed for birthdays of registered faces already set only when the face of a person 3 years old or younger is detected.

When recording motion pictures

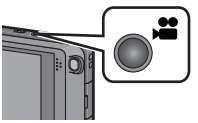
→	[i-Portrait]
	[i-Scenery]
	[i-Low Light]
	[i-Macro]

- [ ] is set if none of the scenes are applicable, and the standard settings are set.
- When [ ], [ ] or [ ] is selected, the camera automatically detects a person's face, and it will adjust the focus and exposure. **(Face Detection)**
- If a tripod is used, for instance, and the camera has judged that camera shake is minimal when the Scene Mode has been identified as [ ], the shutter speed will be set to a maximum of 8 seconds.Take care not to move the camera while taking pictures.
- When [Face Recog.] is set to [On], and the face similar to the registered face is detected, [R] is displayed in the top right of [ ], [ ] and [ ].
- Due to factors such as size, contrast, motion and proximity a different mode may be identified for the same subject.
  – Subject conditions: When the face is bright or dark, the size of the subject, the color of the subject, the distance to the subject, the contrast of the subject, when the subject is moving
  – Recording conditions: Sunset, sunrise, under low brightness conditions, when the camera is shaken, when zoom is used
- For the best results, it is recommended that you take pictures in the appropriate Recording Mode.
- **The Backlight Compensation**
  – Backlight refers to when light comes from the back of a subject. In this case, the subject will become dark, so this function compensates the backlight by brightening the whole of the picture automatically.

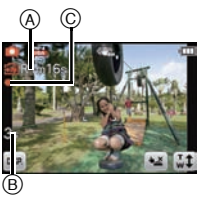
Applicable modes: iA SCN 3D

Recording Motion Pictures

1 Start recording by pressing the motion picture button.



Ⓐ Available recording time
Ⓑ Elapsed recording time
- You can record motion pictures fitting each Recording Mode.
- Release the motion picture button right after you press it.
- The recording state indicator (red) Ⓒ will flash while recording motion pictures.
- For the setting of the [Rec Mode] and [Rec Quality], refer to P93.



2 Stop the recording by pressing the motion picture button again.

Note

- Built-in memory can only store data as the [VGA] of [MP4].
- The available recording time displayed on the screen may not decrease regularly.
- Depending on the type of the card, the card access indication may appear for a while after recording motion pictures. This is not a malfunction.
- The screen may be blacked out momentarily, or the unit may record noise due to static electricity or electromagnetic waves etc. depending on the environment of the motion picture recording.
- When operating the zoom in recording motion pictures, it may take time to come into focus.
- If you operate the zoom etc. while recording motion pictures, the sound of the operation may be recorded.
- Zoom speed may be slower than normal in recording motion pictures.
- If the Extended Optical Zoom was used before pressing the motion picture button, recordable area will be changed drastically since these settings are canceled.
- Even if the aspect ratio setting is the same in still and motion pictures, the angle of view may change at the start of the motion picture recording.
  When [Rec Area] (P43) is set to [On], angle of view during motion picture recording is displayed.
- It is recommended to use a fully charged battery or AC adaptor (optional) when recording motion pictures.
- If while recording motion pictures using the AC adaptor (optional) and the power supply is cut off due to a power outage or if the AC adaptor (optional) is disconnected etc., the motion picture being recorded will not be recorded.
- It will be recorded in following categories for certain Scene Modes. A motion picture recording matching each scene will be performed for the ones not listed below.

Selected Scene Mode	Scene Mode while recording motion picture
[Baby1]/[Baby2]	Portrait Mode
[Night Portrait], [Night Scenery], [Handheld Night Shot], [Starry Sky]	Low Light Mode
[Panorama Assist], [Sports], [Pet], [Hi-Speed Burst], [Flash Burst], [Fireworks], [Photo Frame]	Normal motion picture

■ About the recording format for recording motion pictures

This unit can record motion pictures in either AVCHD or MP4 formats.

AVCHD:

This is a format for precise, high definition video. This format is best used when the video will be displayed on a high definition TV, or saved to a disk and watched on a computer.

MP4:

This is a simpler video format best used when extensive editing is needed, or when uploading videos to the internet.

■ About the compatibility of the recorded motion pictures

Motion pictures recorded in [AVCHD] or [MP4] may be played back with poor picture or sound quality or playback may not be possible even when played back with equipment compatible with these formats. Also, the recording information may not be displayed properly. In this case, use this unit.

- For details on AVCHD and MP4 compatible devices, refer to the support sites below.
  http://panasonic.jp/support/global/cs/dsc/
  (This Site is English only.)

Recording still pictures while recording motion pictures

Still pictures can be recorded even while recording a motion picture. (simultaneous recording)

During motion picture recording, press the shutter button fully to record a still picture.

• The picture is saved with the following conditions.

[AVCHD]	Picture size
[FSH]/[SH]	3.5 M (16:9)

[MP4]	Picture size
[FHD]/[HD]	3.5 M (16:9)

Note

• During motion picture recording, if you press the shutter button halfway, or record still pictures with the touch shutter, the camera will refocus and the refocus movement will be recorded to the motion picture being recorded. To prioritize the motion picture image, recording still pictures by fully pressing the shutter button, or creating still pictures after motion picture recording is recommended. (P33)
• The touch shutter function will also work if you unintentionally touch the touch panel, so be careful.
• Picture size and number of recordable pictures are displayed by pressing the shutter button halfway.
• Recording of motion picture will continue after taking the still picture.
• The quality of pictures taken with simultaneous recording may differ compared to normal [3.5M] pictures.
• You can record up to 5 pictures per motion picture recording.
• Zooming may stop when a picture is recorded while zooming.
• Simultaneous recording is not possible when [VGA] in [MP4] is set.
• Operation sound of the shutter button may be recorded when a picture is taken during motion picture recording.
• **The flash setting is fixed to [⊘].**
• When the subject has a bright part, reddish stripes may appear on the LCD monitor. Alternatively, part or all of the LCD monitor may turn a reddish color.

Playing Back Pictures ([Normal Play])

In Recording Mode touch [▶].

- The display switches to normal playback.



Note

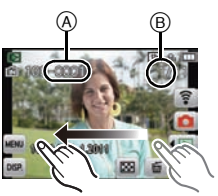
- This camera complies with the DCF standard “Design rule for Camera File system” established by JEITA “Japan Electronics and Information Technology Industries Association” and with Exif “Exchangeable Image File Format”. Files which do not comply with the DCF standard cannot be played back.
- Pictures recorded with other camera may not be able to playback on this unit.
- The lens barrel retracts about 15 seconds after switching from [Rec] Mode to [Playback] Mode.

Forward or rewind the image

Drag (P8) the screen horizontally.

– Forward: drag from right to left
– Rewind: drag from left to right

Ⓐ File number
Ⓑ Picture number



- Speed of picture forwarding/rewinding changes depending on the playback status.
- You can forward or rewind pictures continuously by keeping your finger on the left or right sides of the screen after forwarding/rewinding a picture.
  (Pictures are displayed reduced in size.)

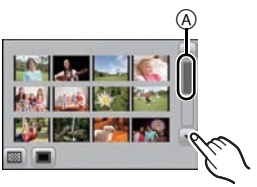
Displaying Multiple Screens (Multi Playback)

Touch [▦].



Ⓐ Slide bar

- It is possible to switch the playback screen by touching the following icons.
  - –[▣]: 1 screen
  - –[▦]: 12 screens
  - –[▩]: 30 screens
  - –[CAL]: Calendar screen display
- Switch the screen by touching [▲]/[▼] if these are displayed on the slide bar.
- The screen can be switched by dragging the slide bar up or down (P8).
- The screen can be switched gradually by dragging the screen up or down (P8).
- Pictures displayed using [[!]] cannot be played back.



Using the Playback Zoom

Touch the part to enlarge firmly.



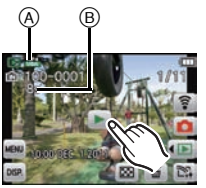
1×→2×→4×→8×→16×

- You can also enlarge/reduce the picture by moving the zoom lever.
- When you change the magnification, the zoom position indication Ⓑ appears for about 2 seconds.
- The more a picture is enlarged, the more its quality deteriorates.
- You can move the enlarged part by dragging (P8) the screen.
- Picture will return to the original size (1×) by touching [×1.0].
- When you touch [🔍], the magnification becomes lower.

Playing Back Motion Pictures

This unit was designed to play motion pictures using the AVCHD, MP4 and QuickTime Motion JPEG formats.

In Playback Mode, select a picture with the motion picture icon (such as [MP4 VGA]/[AVCHD FSH]) and touch [▶] in the middle of the screen.



Ⓐ Motion picture icon
Ⓑ The motion picture recording time

- After playback starts, the elapsed playback time is displayed on the screen.
  For example, 8 minutes and 30 seconds is displayed as [8m30s].
- Some information (recording information, etc.) is not displayed for motion pictures recorded in [AVCHD].

■ **Operations performed during Motion Picture Playback**

1 Display control panel by touching screen.

• If no operation is performed for about 2 seconds, it will return to original status.

2 Operate control panel by touching.

▶/II	Play/Pause	■	Stop
◀◀	Fast rewind*	▶▶	Fast forward*
◀II	Frame-by-frame rewind (while pausing)	II▶	Frame-by-frame forward (while pausing)
+	Increase volume level	−	Reduce volume level

*The fast forward/rewind speed increases if you touch [▶▶]/[◀◀] again.

Note

• When using a high capacity card, it is possible that fast rewinding may be slower than usual.
• To play back the motion pictures recorded by this unit on a PC, use the “QuickTime” or the “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” software on the CD-ROM (supplied).
• Motion pictures recorded with other camera may not be able to playback on this unit.

Creating Still Pictures From a Motion Picture

You can create a single still picture from a recorded motion picture.

1 Touch [▶/II] during Motion Picture playback.

2 Touch [Save].

• Confirmation screen is displayed. It is executed when [Yes] is selected.

Note

• The picture is saved with the following recording sizes.

[AVCHD]	Picture size
[FSH]/[SH]	2 M (16:9)

[MP4]	Picture size
[FHD]/[HD]	2 M (16:9)
[VGA]	0.3 M (4:3)

• You may not be able to save still pictures from a motion picture taken on other equipment.
• Still pictures created from a motion picture may be coarser than with normal picture quality.

Deleting Pictures

Once deleted, pictures cannot be recovered.
- Pictures on the built-in memory or the card, that are being played back will be deleted.
- Pictures that are not in the DCF standard or those that are protected cannot be deleted.

To delete a single picture

1 **In Playback Mode, select the picture to delete and touch [🗑].**



2 **Touch [Delete Single].**
- Confirmation screen is displayed.
  Picture is deleted by selecting [Yes].



To delete multiple pictures (up to 50) or all the pictures

1 **In Playback Mode, touch [🗑].**

2 **Touch [Delete Multi] or [Delete All].**

- [Delete All] → Confirmation screen is displayed.
  Pictures are deleted by selecting [Yes].
- It is possible to delete all pictures except the ones set as favorite when [All Delete Except ★] is selected with the [Delete All] set.

3 **(When [Delete Multi] is selected) Touch the picture to be deleted.**
(repeat this step)

- [🗑] appears on the selected pictures. Touching again cancels the setting.



4 **(When [Delete Multi] is selected) Touch [OK].**

- Confirmation screen is displayed.
  Pictures are deleted by selecting [Yes].

Note

- Do not turn the camera off while deleting. Use a battery with sufficient battery power or the AC adaptor (optional).
- Depending on the number of pictures to be deleted, it may take some time to delete them.

Setting the Menu

The camera comes with menus that allow you to choose the settings for taking pictures and playing them back as you like and menus that enable you to have more fun with the camera and use it more easily.
In particular, the [Setup] menu contains some important settings relating to the camera's clock and power. Check the settings of this menu before proceeding to use the camera.

Setting menu items

Example: In the [Rec] menu, change [AF Mode] from [■] (1-area-focusing) to [👤] (Face Detection)

1 **Touch [MENU].**



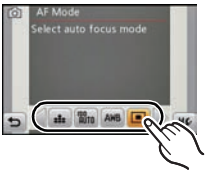
2 **Touch the menu icon.**



Menu	Description of settings
[Rec] (P73 to 92) **([Rec] Mode only)**	This menu lets you set the Coloring, Sensitivity, Aspect Ratio, Number of pixels and other aspects of the pictures you are recording.
[Motion Picture] (P93 to 95) **([Rec] Mode only)**	This menu lets you set the [Rec Mode], [Rec Quality], and other aspects for motion picture recording.
[Playback] (P101 to 112) **([Playback] Mode only)**	This menu lets you set the Protection, Cropping or Print Settings, etc. of recorded pictures.
[Wi-Fi Setup] (P126 to 143) **([Playback] Mode only)**	This menu allows changes to be made to Wi-Fi settings, including saving wireless access points (broadband router) and registering the "LUMIX CLUB". **[Easy Setup]:** (P126) This menu allows changes to be made to Wi-Fi settings easily. **[Manual Setup]**: (P126) This menu allows changes to be made to Wi-Fi settings manually.
[Setup] (P39 to 48)	This menu lets you perform the clock settings, select the operating beep tone settings and set other settings which make it easier for you to operate the camera.

3 Touch the menu item.

• The page can be changed by touching [◁]/[▷].



4 Touch the Settings.

• Depending on the menu item, its setting may not appear or it may be displayed in a different way.



Description of the icon is displayed by touching and holding the icon for menu item/setting in steps **3** and **4**.
– It will be set when you release your finger.
– It will not be set when you move your finger to the position where there is no icon, and then release your finger.

■ **Close the menu**

Touch [↩] several times or press the shutter button halfway.

Note

• There are functions that cannot be set or used depending on the modes or menu settings being used on the camera due to the specifications.

Call up commonly used menus with ease (Shortcut setting)

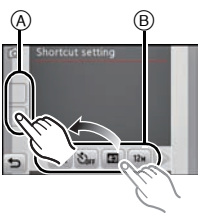
You can have the LCD monitor display desired menu items.
Up to 2 frequently-used menu items can be registered per [Rec]/[Playback] Mode.
• Read P73 for the [Rec] Mode menu, P93 for the [Motion Picture] Mode menu, and P101 for the [Playback] Mode menu.

1 **Touch [MF] on the menu item selection screen.**



2 **Drag the menu item to register to the shortcut setting area.**

Ⓐ Shortcut setting area
Ⓑ Menu item
• The registered menu item is displayed.
• Exit the menu after it is set.



■ Replacing or removing items

• In Step **2**, drag the menu item you want to register to an item already registered. The items will be replaced.
• In Step **2**, drag registered items out of the shortcut setting area. Registration is canceled leaving an empty item.

Note

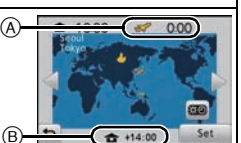
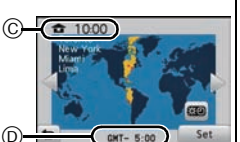
• Settings in the [Wi-Fi Setup] Menu/[Setup] Menu cannot be set.
• You may not be able to use some of the registered items depending on the [Rec] Mode.

About the Setup Menu

[Clock Set], [Economy] and [Auto Review] are important items. Check their settings before using them.
For details on how to select the [Setup] menu settings, refer to P36.

[Clock Set]	—

• Refer to P17 for details.

[World Time]	Set the time in your home area and travel destination. You can display the local times at the travel destinations and record them on the pictures you take.
	After selecting [Destination] or [Home], select your area with [◁]/[▷] and touch [Set]. • Set [Home] first thing after purchasing. [Destination] can be set after setting up [Home].
	[✈] ([Destination]): Travel destination area Ⓐ Current time of the destination area Ⓑ Time difference from home area 
	[⌂] ([Home]): Your home area Ⓒ Current time Ⓓ Time difference from GMT (Greenwich Mean Time) 

• Setup/cancel summer time by touching [🕒] when selecting your area.
• If you cannot find the travel destination in the areas displayed on the screen, set by the time difference from the home area.

[Travel Date]	Departure date and return date of the travel as well as the name of the travel destination can be set. You can display the number of days that have passed when playing back the pictures and stamp it on the recorded pictures with [Text Stamp] (P102).
	[Travel Setup]: **[SET]:** Departure date and return date are set. Elapsed days (how many days after) of the travel are recorded. **[OFF]:** Elapsed days are not recorded. • The travel date is automatically canceled if the current date is after the return date.If the [Travel Setup] is set to [OFF], [Location] will be also set to [OFF].
	[Location]: **[SET]:** Travel destination is recorded at the time of recording. **[OFF]** • For details on how to enter characters, refer to “Entering Text” on P72.

- The number of days that have passed since the departure date can be printed out using the “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” bundled software on the CD-ROM (supplied).
- The travel date is calculated using the date in the clock setting and the departure date you set. If you set [World Time] to the travel destination, the travel date is calculated using the date in the clock setting and the travel destination setting.
- The travel date setting is memorized even if the camera is turned off.
- The number of days that have passed since the departure date is not recorded before the departure date.
- The [Travel Date] feature is disabled when recording [AVCHD] motion pictures.
- While recording motion pictures, the [Location] feature is disabled.
- When Intelligent Auto Mode is selected, the [Travel Date] feature is disabled. Setting of other Recording Mode will be reflected.

[Beep]	This allows you to set the beep and shutter sound.	
	[ )))] ([Beep Level]): **[ )] (Low)** **[ )))] (High)** **[ ] (Muted)**	**[♪] ([Shutter Vol.]):** **[♪] (Low)** **[♪)))] (High)** **[♪] (Muted)**
	[ ) ❷] ([Beep Tone]): **[ ) ❶]/[ ) ❷]/[ ) ❸]**	**[♪ ❷] ([Shutter Tone]):** **[♪ ❶]/[♪ ❷]/[♪ ❸]**

[Volume]	Adjust the volume of the speaker to any of 7 levels.

• When you connect the camera to a TV, the volume of the TV speakers does not change.

[LCD Display]	Adjust the brightness and contrast, or red or blue tint of the LCD monitor.
	[☼] ([Brightness]): Adjust the brightness. **[◑] ([Contrast · Saturation]):** Adjust the contrast or clarity of colors. **[▲] ([Red Tint]):** Adjust the red tint. **[▲] ([Blue Tint]):** Adjust the blue tint.
	1 Touch the item to set and adjust with [◁]/[▷] **2 Touch [OK].** 

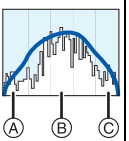
• Some subjects may appear differently from actuality on the LCD monitor. However, this does not affect the recorded pictures.

[LCD Mode]	These menu settings make it easier to see the LCD monitor when you are in bright places.
	[AUTO] ([Auto Power LCD])*: The brightness is adjusted automatically depending on how bright it is around the camera. **[ ] ([Power LCD]):** The LCD monitor becomes brighter and easier to see even when taking pictures outdoors. **[OFF] ([Off])** * Can be set only when [Rec] mode is set.

- The brightness of the pictures displayed on the LCD monitor is increased so some subjects may appear different from real life on the LCD monitor. However, this does not affect the recorded pictures.
- The LCD monitor automatically returns to normal brightness after 30 seconds when recording in Power LCD Mode. It will light up brightly again by button or touch operation.
- The number of recordable pictures decreases in [LCD Mode].

[Guide Line]	Set the pattern of the guidelines displayed when taking pictures. You can also set whether or not to have the recording information displayed when the guidelines are displayed.	
	[Rec. Info.]: **[ON]/[OFF]**	**[Pattern]:** **[ ]/[ ]**

- When you align the subject on the horizontal and vertical guidelines or the cross point of these lines, you can take pictures with well-designed composition by viewing the size, the slope and the balance of the subject.
- The [Pattern] setting is fixed to [ ] in the Intelligent Auto Mode.
- In [Photo Frame] in Scene Mode, the guideline is not displayed.

[Histogram]	This allows you to set either to display or not display the histogram.
	[ON] ([On])/[OFF] ([Off])
	A Histogram is a graph that displays brightness along the horizontal axis (black to white) and the number of pixels at each brightness level on the vertical axis. It allows you to easily check a picture's exposure. Ⓐ dark Ⓑ optimal Ⓒ bright 

- **When you take pictures with the flash or in dark places, the Histogram is displayed in orange because the recorded picture and the Histogram do not match each other.**
- The Histogram is an approximation in the Recording Mode.
- The Histogram of a picture may not match in the Recording Mode and the Playback Mode.
- The Histogram displayed in this camera does not match Histograms displayed by picture editing software used in PCs etc.
- Histograms are not displayed in the following cases:
  – Intelligent Auto Mode
  – Multi Playback
  – When recording motion pictures
  – Playback Zoom
  – [Photo Frame] in Scene Mode
  – When HDMI micro cable is connected
  – Calendar

[Rec Area]	Angle of view for motion picture recording can be checked.
	[ON] ([On])/[OFF] ([Off])

- Motion picture recording frame display is only an approximation.
- Recording frame display may disappear when zooming to Tele depending on the picture size setting.
- It will be fixed to [Off] during the Intelligent Auto Mode.

[Economy]	You can conserve the battery life by setting these menus. Also, the battery life is conserved by dimming the LCD monitor.
	[ZZ] ([Sleep Mode]): The camera is automatically turned off if the camera has not been used for the time selected on the setting. **[ZZ 2MIN.] ([2MIN.])/[ZZ 5MIN.] ([5MIN.])/[ZZ 10MIN.] ([10MIN.])/[ZZ OFF] ([Off])**
	[ECO] ([LCD Power Save]): Brightness of the LCD monitor is lowered. The battery life will be conserved by lowering the image quality of the LCD monitor further during the recording*. * Excluding the Digital Zoom range. **[ON]/[OFF]**

- Press the shutter button halfway or turn the camera off and on to cancel [Sleep Mode].
- [Sleep Mode] is set to [5MIN.] in the Intelligent Auto Mode.
- [Sleep Mode] does not work in the following cases.
  – When using the AC adaptor
  – When connecting to a PC or a printer
  – When recording or playing back motion pictures
  – During a slide show
  – [Auto Demo]
- The effect of the [LCD Power Save] is lower in the Digital Zoom range compared to the Optical Zoom range.
- The effect of the [LCD Power Save] will not affect the image being recorded.
- Setting of [LCD Mode] has priority over the setting of [LCD Power Save] regarding the brightness of the LCD monitor.

[Auto Review]	Set the length of time that the picture is displayed after taking the still picture.
	[1SEC.] ([1 sec.])
	[2SEC.] ([2 sec.])
	[HOLD] ([Hold]): The pictures are displayed until [Exit] is touched.
	[OFF] ([Off])

- [Auto Review] is activated regardless of its setting in the following cases.
  – In [Handheld Night Shot], [Hi-Speed Burst] and [Flash Burst] in scene mode
  – When using Auto Bracket
  – During the Burst Mode
- In Intelligent Auto Mode or [Photo Frame] in Scene Mode, the Auto Review function is fixed to [2 sec.].
- [Auto Review] does not work when recording motion pictures.

[No.Reset]	Reset the file number of the next recording to 0001.

- The folder number is updated and the file number starts from 0001.
- A folder number between 100 and 999 can be assigned.
  When the folder number reaches 999, the number cannot be reset. We recommend formatting the card (P47) after saving the data on a PC or elsewhere.
- To reset the folder number to 100, format the built-in memory or the card first and then use this function to reset the file number.
  A reset screen for the folder number will then appear. Select [Yes] to reset the folder number.

[Reset]	The [Rec] or [Setup] menu settings are reset to the initial settings.

- When the [Reset] setting is selected during recording, the operation that resets the lens is also performed at the same time. You will hear the sound of the lens operating but this is normal and not indicative of malfunctioning.
- When the [Rec] Mode settings are reset, data registered with [Face Recog.] will be also reset, too.
- When [Setup] menu settings are reset, the following settings are also reset.
  – [Shortcut setting]
  – The birthday and name settings for [Baby1]/[Baby2] and [Pet] in Scene Mode
  – The settings of [Travel Date] (departure date, return date, location)
  – The [World Time] setting
- The folder number and the clock setting are not changed.

[Reset Wi-Fi Settings]	Reset all settings in the [Wi-Fi Setup] menu to factory default settings.

- Always reset the camera when disposing or selling it to prevent personal information saved within the camera from being misused.
- Always reset the camera after making a copy of personal information when sending the camera in to be repaired.

[USB Mode]	Select the USB communication system after or before connecting the camera to your PC or your printer with the USB connection cable (supplied).
	[ ] ([Select on connection]): Select either [PC] or [PictBridge(PTP)] if you connected the camera to a PC or a printer supporting PictBridge. **[ ] ([PictBridge(PTP)]):** Set after or before connecting to a printer supporting PictBridge. **[ ] ([PC]):** Set after or before connecting to a PC.

[Output]	Set to match the color television system in each country or the type of TV.
	[ ] ([TV Aspect]): **[16:9]:** When connecting to a 16:9 screen TV. **[4:3]:** When connecting to a 4:3 screen TV. • This will work when the AV cable (optional) is connected.

[VIERA Link]	Setup so this unit can be controlled by the remote control of the VIERA by automatically coupling this unit with the VIERA Link compatible equipment using HDMI micro cable (optional).
	[VIERA Link ON] ([On]): Remote control operation of the VIERA Link compatible equipment is enabled. (Not all operations are possible) The operations you can perform on the camera are limited. **[VIERA Link OFF] ([Off]):** Operations will be on the camera only.

• This will work when the HDMI micro cable (optional) is connected.
• Refer to P146 for details.

[3D Playback]	Setup the output method for 3D pictures.
	[3D] ([3D]): Set when connecting to a 3D compatible television. **[2D] ([2D]):** Set when connecting to a television not compatible with 3D. Set this when you would like to view pictures in 2D (conventional image) on a 3D compatible television.

- This will work when the HDMI micro cable (optional) is connected.
- Refer to P148 for the method to playback 3D pictures in 3D.

[Rotate Disp.]	This mode allows you to display pictures vertically if they were recorded holding the camera vertically.
	[On] ([On]): It will rotate and display vertically. **[External Only] ([External Only]):** It will display vertically only when playing back connected to a TV. **[Off] ([Off]):**

- Refer to P30 for information about how to play back pictures.
- When you play back pictures on a PC, they cannot be displayed in the rotated direction unless the OS or software is compatible with Exif. Exif is a file format for still pictures which allows recording information etc. to be added. It was established by “JEITA (Japan Electronics and Information Technology Industries Association)”.
- It may not be possible to rotate pictures that have been recorded with other equipment.
- The display is not rotated during Multi Playback.

[Version Disp.]	It is possible to check which version of firmware is on the camera.

[Format]	The built-in memory or card is formatted (Pictures in My Photo Album are also formatted). Formatting irretrievably deletes all the data so check the data carefully before formatting.

- Use a battery with sufficient battery power or the AC adaptor (optional) when formatting. Do not turn the camera off during formatting.
- If a card has been inserted, only the card is formatted. To format the built-in memory, remove the card.
- If the card has been formatted on a PC or other equipment, format it on the camera again.
- It may take longer to format the built-in memory than the card.
- If the card cannot be formatted, please try another card before contacting your nearest Service Center.

For USA and Puerto Rico assistance, please call:
1-800-211-PANA(7262) or, contact us via the web at:
http://www.panasonic.com/contactinfo

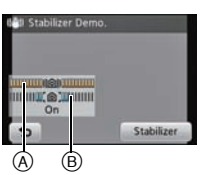
For Canadian assistance, please call:
1-800-99-LUMIX (1-800-995-8649) or
send e-mail to: lumixconcierge@ca.panasonic.com

[Calibration]	Adjust the position of the touch panel if a different thing gets selected from what you touched or touch operation does not respond. **1 Touch [Start].** **2 Touch the orange [+] mark displayed on the screen in order with the stylus pen (supplied) (5 places).** • A message is displayed once the position is set. **3 Touch [End] to finish.** 

• Calibration is not done if correct position is not touched. Touch the [+] mark again.

[Language]	Set the language displayed on the screen.

• If you set a different language by mistake, select [] from the menu icons to set the desired language.

[Demo Mode]	Displays the amount of jitter the camera has detected. ([Stabilizer Demo.]) The camera's features are displayed as slide shows. ([Auto Demo]) **[Stabilizer Demo.]** Ⓐ Amount of jitter Ⓑ Amount of jitter after correction  **[Auto Demo]:** **[ON]** **[OFF]**

• The Stabilizer function is switched between [On] and [Off] every time [Stabilizer] is touched during the [Stabilizer Demo.].
• [Stabilizer Demo.] is an approximation.
• [Auto Demo] is not output to the television.

About the LCD Monitor

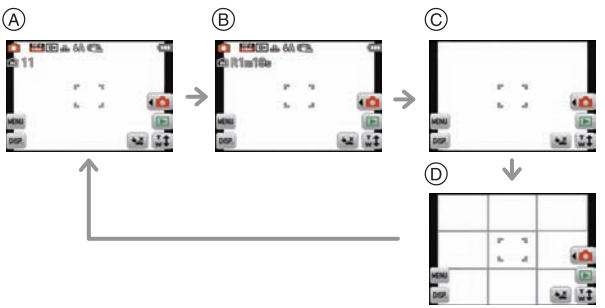
Touch [DISP.] to change.

• During Playback Zoom, while playing back motion pictures and during a slide show, you can only select “Normal display Ⓔ” or “No display Ⓖ”.



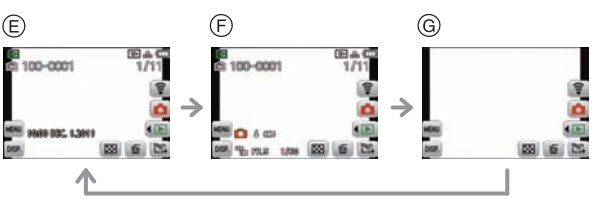
In Recording Mode

Ⓐ Normal display*1
Ⓑ Normal display*1
Ⓒ No display*2
Ⓓ No display (Recording guideline)*1, 2



In Playback Mode

Ⓔ Normal display
Ⓕ Display with recording information*1
Ⓖ No display*2, 3



*1 If the [Histogram] in [Setup] menu is set to [On], histogram will be displayed.
*2 When operation ceases for a certain amount of time, only the icons shown below are displayed.
– In Recording Mode: [ ]/[ ]/[DISP.]
– In Playback Mode: [ ]/[DISP.]
*3 Name of the registered person in [Face Recog.] is displayed when [DISP.] is touched.

Applicable modes: iA SCN 3D

Taking pictures using the touch operation (Touch Shutter function)

Just by touching the subject to focus, it will focus on the subject and take the picture automatically.



1 Touch [ ].

- Icon will change to [ ], and taking a picture with the Touch Shutter function becomes possible.

: Touch Shutter enabled

: Touch Shutter disabled

2 Touch the subject you wish to focus on, and then take a picture.

- AF area is displayed at the position you touch, and a picture is taken. (It cannot be set to edge of the screen)

3 Touch [ ] to cancel the Touch Shutter function.

Note

- Touch operation is not possible at the top right of the LCD monitor even if image is displayed.
- Touch Shutter setting is memorized even if the camera is turned off.
- You cannot record motion pictures with the Touch Shutter.

Applicable modes: iA, camera, SCN, 3D, creative

Match the focusing and exposure to a desired subject using touch operations (Touch AF/AE)

It is possible to set the focus and exposure to the subject specified on the touch panel.
• Perform the operation after canceling the touch shutter function.

1 Touch the subject you wish to focus on.

- The AF area can be set freely at a position on the screen. (Cannot be set at the edge of the screen)
- Action will vary depending on the setting of [AF Mode] (P82).
- Touch AF/AE will be fixed to AF Tracking during Intelligent Auto Mode and the most appropriate scene will be determined for the touched subject.

[AF Mode]	Operations when touched
[Face Detection])/ [23-Area])/ [1-Area])/ [Spot])	• In [Face Detection]), the AF area turns yellow when touched. • When it is set to anything other than [Spot]([Spot]), AF area [1-Area]) is displayed. • When it is set to [Spot]), AF area [Spot]) is displayed. Example: When AF area is set to [1-Area]) 
[AF Tracking])	• The AF area turns yellow and the subject is locked. The camera will continuously adjust the focus and exposure automatically, following the movement of the subject. (Dynamic Tracking)

- Touch [ ] to go back to the original Focus Mode.

2 Press the shutter button halfway to focus and then press it fully to take the picture.

■ Setting up [ ] (AF Tracking)

- The AF tracking frame will turn red and then turn off if the lock fails. Try to lock the frame again.
- The camera records pictures with [AF Mode] as [ ] when locked or Dynamic Tracking is not working.
- AF Tracking is canceled when the Touch Shutter is set to [ ].
- It cannot be set to [ ] in the following conditions
  - In [Panorama Assist], [Pin Hole], [Film Grain], or [High Dynamic] in Scene Mode
  - In [B/W], [Sepia], [Cool], or [Warm] in [Color Mode].
- The lock may fail in cases with the following recording conditions.
  - When the subject is too small
  - When the recording location is too dark or bright
  - When the subject is moving too fast
  - When another subject or background is similar in color to the subject
  - When jitter is occurring
  - When using the zoom

Note

- Touch operation is not possible at the top right of the LCD monitor even if image is displayed.

Applicable modes: iA SCN 3D

Using zoom

Using the Optical Zoom/Using the Extended Optical Zoom (EZ)/Using the Intelligent Zoom/Using the Digital Zoom

You can zoom-in to make people and objects appear closer or zoom-out to record landscapes in wide angle. To make subjects appear even closer (maximum of 9.8×), do not set the picture size to the highest setting for each aspect ratio (4:3/3:2/16:9/1:1).

To make subjects appear closer use (Tele)

Move the zoom lever to the Tele side.



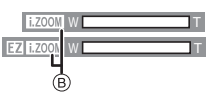
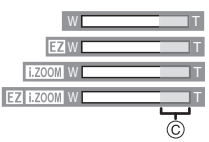
To make subjects appear further away use (Wide)

Move the zoom lever to the Wide side.



■ Types of zooms

Feature	Optical Zoom	Extended Optical Zoom (EZ)
Maximum magnification	5×	9.8×*
Picture quality	No deterioration	No deterioration
Conditions	None	[Picture Size] with EZ (P77) is selected.
Screen display		 Ⓐ [EZ] is displayed.

Feature	Intelligent Zoom	Digital Zoom
Maximum magnification	Approximately 1.3 times the Optical Zoom or Extended Optical Zoom	Approximately 4 times the Optical Zoom, Extended Optical Zoom, or Intelligent Zoom
Picture quality	No noticeable deterioration	The higher the magnification level, the greater the deterioration.
Conditions	[i.Resolution] (P89) on the [Rec] menu is set to [i.Zoom].	[Digital Zoom] (P89) on the [Rec] menu is set to [On].
Screen display	 Ⓑ [i.ZOOM] is displayed.	 Ⓒ The Digital Zoom range is displayed.

• When using the Zoom function, an estimate of the focus range will appear in conjunction with the zoom display bar. (Example: 0.5 m (1.64 ft.) –∞)

* The magnification level differs depending on [Picture Size] and [Aspect Ratio] setting.

Note

- The indicated zoom magnification is an approximation.
- "EZ" is an abbreviation of "Extended Optical Zoom". It is possible to take more magnified pictures with the optical zoom.
- The lens barrel extends or retracts according to the zoom position. Take care not to interrupt the motion of the lens barrel while the zoom lever is rotated.
- When using the Digital Zoom, we recommend using a tripod and the self-timer (P76) for taking pictures.
- The Intelligent Zoom cannot be used in the following cases.
  - In [Motion Deblur] in Intelligent Auto Mode
  - In Macro Zoom Mode
  - In [Handheld Night Shot], [High Sens.], [Hi-Speed Burst], [Flash Burst] or [Pin Hole] in Scene Mode
- The Extended Optical Zoom cannot be used in the following cases.
  - In [Motion Deblur] in Intelligent Auto Mode
  - In Macro Zoom Mode
  - In [Transform], [Handheld Night Shot], [High Sens.], [Hi-Speed Burst], [Flash Burst], [Pin Hole] or [Photo Frame] in Scene Mode
  - When recording motion pictures
- [Digital Zoom] cannot be used in the following cases.
  - In Intelligent Auto Mode
  - In [Transform], [Handheld Night Shot], [High Sens.], [Hi-Speed Burst], [Flash Burst], [Pin Hole], [Film Grain] or [Photo Frame] in Scene Mode

Zooming with touch operation

1 Touch [T/W].

- Zoom icon is displayed on the LCD monitor.



2 Touch the zoom icon on the screen.



[T]	The zoom position automatically moves to Tele.*
[W]	The zoom position automatically moves to Wide.*
[L]	Slow zooming
[H]	Fast zooming

*Touching the icon again during the move stops the move.

- Zoom speed may be slower than normal in recording motion pictures.

[Rec] Mode: SCN

Taking Pictures that Match the Scene Being Recorded (Scene Mode)

When you select a Scene Mode to match the subject and recording situation, the camera sets the optimal exposure and hue to obtain the desired picture.

1 **In Recording Mode touch [ ].**

2 **Touch [SCN].**

3 **Touch the scene mode to set.**

- The page can be changed by touching [◁]/[▷].
- Touching and holding the scene mode icon will display a description.
  – It will be set when you release your finger.
  – It will not be set when you move your finger to the position where there is no icon, and then release your finger.



Note

- Scene Modes can be changed by touching [SCN] from the menu screen.
- The following items cannot be set in Scene Mode because the camera automatically adjusts them to the optimal setting.
  – [Sensitivity]/[Macro Mode]/[i.Exposure]/[Min. Shtr Speed]/[i.Resolution]/[Color Mode]

[Portrait]

When taking pictures of people outdoors during the day, this mode allows you to improve the appearance of the persons concerned and make their skin tones look healthier.

■ Technique for Portrait Mode

To make this mode more effective:

❶ Press and hold down the zoom lever as far as possible to Tele.

❷ Move close to the subject to make this mode more effective.

[Transform]

Subject can be recorded either slim or stretched, and at the same time, skin can be recorded smoothly.

■ Setting the level of transform

Select the level of transform.

Note

- The picture size is fixed to 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).
- Do not use the material against the public order and morals, or to offend someone.

[Self Portrait]

Select this to take pictures of yourself.

■ Technique for Self Portrait Mode

- Press the shutter button halfway to focus. The self-timer indicator lights up when you are brought into focus. Making sure you hold the camera still, press the shutter button fully to take the picture.
- The subject is not focused when the self-timer indicator is blinking. Make sure to press the shutter button halfway again to focus.
- If the picture is blurry due to the slow shutter speed, we recommend using the 2 second self-timer.



[Scenery]

This allows you to take pictures of a wide landscape.

[Panorama Assist]

You can take pictures with connections suitable for creating panorama images.

■ **Setting the recording direction**

1 **Touch the direction to take picture.**

2 **Touch [OK].**

- The horizontal/vertical guideline will be displayed.

3 **Take the picture.**

- You can retake the picture by selecting [Retake].

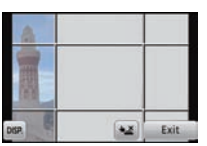


4 **Touch [Next].**

- Part of the recorded image is displayed as a transparent image.

5 **Take picture after moving the camera horizontally or vertically so the transparent image overlaps.**

- When taking the third and later pictures, repeat steps **4** and **5**.



6 **Touch [Exit].**

Note

- The focus, zoom, exposure, White Balance, shutter speed and ISO sensitivity are fixed to the settings for the first picture.
- We recommend using a tripod. When it is dark, we recommend using the self-timer for taking pictures.
- Shutter speed may slow down up to 8 seconds.
- The shutter may remain closed (max. about 8 sec.) after taking the picture because of signal processing. This is not a malfunction.
- The recorded images can be combined into panorama pictures using the software “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” on the CD-ROM (supplied).

[Sports]

Set here when you want to take pictures of sports scenes or other fast-moving events.

Note
- Shutter speed may slow down up to 1 second.
- This mode is suitable for taking pictures of subjects at distances of 5 m (16.4 feet) or more.

[Night Portrait]

This allows you to take pictures of a person and the background with near real-life brightness.

■ Technique for Night Portrait Mode
- **Use the flash. (You can set to [ϟS◎].)**
- Ask the subject not to move while taking a picture.

Note
- We recommend using a tripod and the self-timer for taking pictures.
- Shutter speed may slow down up to 8 seconds.
- The shutter may remain closed (max. about 8 sec.) after taking the picture because of signal processing. This is not a malfunction.
- Noise may become visible when you take pictures in dark places.

[Night Scenery]

This allows you to take vivid pictures of the nightscape.

Note
- We recommend using a tripod and the self-timer for taking pictures.
- Shutter speed may slow down up to 8 seconds.
- The shutter may remain closed (max. about 8 sec.) after taking the picture because of signal processing. This is not a malfunction.
- Noise may become visible when you take pictures in dark places.

[Handheld Night Shot]

This mode allows you to record multiple pictures of night scenes at high speed, which are all combined to make a single picture. It will reduce the jitter and noise from the picture even when recording with the camera in your hand.

■ Picture size and aspect ratio

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

Note
- Do not move the camera while recording pictures continuously.
- Noise may become visible when you take pictures in dark places or take pictures of moving subjects.

[Food]

This mode allows you to take pictures of food with a natural hue without being affected by the ambient light in restaurants etc.

[Party]

Select this mode when you want to take pictures at a wedding reception or an indoor party etc. This allows you to take pictures of people and the background with near real-life brightness.

■ Technique for Party Mode

- **Use the flash. (You can set to [ ] or [ ].)**
- We recommend using a tripod and the self-timer for taking pictures.
- We recommend moving the zoom lever to Wide (1×) and being about 1.5 m (4.92 feet) from the subject when taking pictures.

[Candle Light]

This mode allows you to take pictures with a candle-lit atmosphere.

■ Technique for Candle Light Mode

- This is more effective when taking pictures without using the flash.

Note

- We recommend using a tripod and the self-timer for taking pictures.
- Shutter speed may slow down up to 1 second.

[Baby1]/[Baby2]

This takes pictures of a baby with a healthy complexion. When you use the flash, the light from it is weaker than usual.
It is possible to set different birthdays and names for [Baby1] and [Baby2]. You can select to have these appear at the time of playback, or have them stamped on the recorded image using [Text Stamp] (P102).

■ **Birthday/Name setting**

1 **Touch [Age] or [Name].**
2 **Touch [SET].**
3 **Enter the birthday or name.**

Birthday: Touch [▲]/[▼] for each item to set year/month/day, and touch [Set].
Name: For details on how to enter characters, refer to “Entering Text” on P72.
- When the birthday or name is set, [Age] or [Name] is automatically set to [ON].
- If [ON] is selected when the birthday or name has not been registered, the setting screen appears automatically.

4 **Touch [Exit] to finish.**

■ **To cancel [Age] and [Name]**

Select the [OFF] setting in step **2**.

Note

- The age and name can be printed out using the “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” bundled software on the CD-ROM (supplied).
- If [Age] or [Name] is set to [OFF] even when the birthday or name has been set, the age or name will not be displayed.
- Shutter speed may slow down up to 1 second.

[Pet]

Select this mode when you want to take pictures of a pet such as a dog or a cat.
You can set your pet’s birthday and name.

For information about [Age] or [Name], refer to [Baby1]/[Baby2] on P61.

[Sunset]

Select this mode when you want to take pictures of a sunset view. This allows you to take vivid pictures of the red color of the sun.

[High Sens.]

This mode minimizes the jitter of the subjects, and enables you to take pictures of these subjects in dimly lit rooms.

■ **Picture size and aspect ratio**

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

[Hi-Speed Burst]

This is a convenient mode for shooting rapid movement or a decisive moment.

■ **Picture size and aspect ratio**

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

• Still pictures are taken continuously while the shutter button is pressed fully.

Maximum Burst speed	approx. 6 pictures/second (Image priority) approx. 10 pictures/second (Speed priority)
Number of recordable pictures	approx. 15 to 100 pictures

• The Burst speed changes according to the recording conditions.
• The number of Burst recording pictures are limited by the picture-taking conditions and the type and/or status of the card used.
• The number of Burst recording pictures may increase when you use a card with fast writing speed or card is formatted.

Note

• The focus, zoom, exposure, White Balance, shutter speed and ISO sensitivity are fixed to the settings for the first picture.
• The ISO sensitivity is automatically adjusted. However, the ISO sensitivity is increased to make the shutter speed become high-speed.
• Depending on the operating conditions, it may take time to take the next picture if you repeat taking a picture.

[Flash Burst]

Still pictures are taken continuously with flash. It is convenient to take continuous still pictures in dark places.

■ Picture size and aspect ratio

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

• Still pictures are taken continuously while the shutter button is pressed fully.

Number of recordable pictures	max. 5 pictures

Note

• The focus, zoom, exposure, shutter speed, ISO sensitivity, and flash level are fixed to the settings for the first picture.
• Number of recordable pictures will be fixed to 5 pictures when the self-timer is used.

[Starry Sky]

This allows you to take vivid pictures of a starry sky or a dark subject.

■ Setting the shutter speed

Select a shutter speed of [15 sec.], [30 sec.] or [60 sec.].

• Press the shutter button fully to display the countdown screen. Do not move the camera after this screen is displayed. When countdown finishes, [Please wait...] is displayed for the same length of time as the set shutter speed for signal processing.

■ Technique for Starry Sky Mode

• The shutter opens for 15, 30 or 60 seconds. Be sure to use a tripod. We also recommend taking pictures with the self-timer.

[Fireworks]

This mode allows you to take beautiful pictures of fireworks exploding in the night sky.

■ Technique for Fireworks Mode

• Since the shutter speed becomes slower, we recommend using a tripod.

Note

• This mode is most effective when the subject is 10 m (32.8 feet) or more away.
• The shutter speed is fixed to 1/4th of a second or 2 seconds.
• You can change the shutter speed by compensating the exposure.

[Beach]

This allows you to take even more vivid pictures of the blue color of the sea, sky etc. It also prevents underexposure of people under strong sunlight.

Note
- Do not touch the camera with wet hands.
- Problems caused by sand, seawater and fresh water are not covered by the product warranty.

[Snow]

This allows you to take pictures that show the snow as white as possible at a ski resort or a snow-covered mountain.

[Aerial Photo]

This mode allows you to take pictures through an airplane window.

■ Technique for Aerial Photo Mode
- We recommend using this technique if it is difficult to focus when taking pictures of clouds etc. Aim the camera at something with high contrast, press the shutter button halfway to fix the focus and then aim the camera at the subject and press the shutter button fully to take the picture.

[Pin Hole]

Picture is taken darker and with soft focus around the subjects.

Note
- Face Detection may not operate normally in the dark areas around the edges of the screen.

[Film Grain]

Picture is taken with a grainy texture as though blasted with sand.

[High Dynamic]

You can use this mode to easily record pictures in which bright and dark regions of the scene are expressed with suitable brightness when looking into the sun, at night, or in similar circumstances.

■ Setting the effect

[STD.] ([Standard]): Natural color effect

[ART] ([Art]): Eye-catching effect which emphasises contrast and color

[B&W] ([B/W]): Black and white effect

Note

- Compensation effect may not be achieved depending on the conditions.
- When it is dark, we recommend using a tripod and the self-timer for taking pictures.
- Shutter speed may slow down up to 8 seconds.
- The shutter may remain closed (max. about 8 sec.) after taking the picture because of signal processing. This is not a malfunction.
- LCD screen noise may be more visible than during normal recording due to brightness compensation of the darker areas.

[Photo Frame]

Record the image with a frame around it.

■ Setting the frame

Select from 3 types of frames.

Note

- The picture size is fixed to 5M (4:3).
- The color of the frame displayed on the screen and the color of the frame around the actual image may differ, but this is not a malfunction.

[Rec] Mode: 3D

Taking 3D pictures (3D Photo Mode)

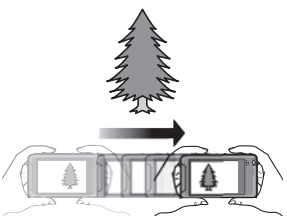
Pictures are recorded continuously while moving the camera horizontally, and two picutres selected automatically are combined to make a single 3D picture.
To view 3D pictures, a television that supports 3D is required (This unit will playback in 2D).
Refer to P148 for details about the playback method.

1 **In Recording Mode touch [ ].**

2 **Touch [3D].**

- Description of recording method is displayed. To exit, touch [OK].

3 **Start the recording and then slide the camera horizontally straight from left to right.**



- A guide is displayed while recording.
- Move the camera approximately 10 cm (0.33 feet) within approximately 4 seconds using the guide.

■ Technique for taking 3D pictures

– Take a picture of a subject that is not moving
– Take a picture in a well-lit place, such as outdoors, etc.
– Fix the focus and exposure by pressing the shutter button halfway, then press the shutter button fully and move the camera
– When you start recording with the subject slightly to the right of the center, the subject will be close to the center in the final picture

Note

- **You cannot record 3D pictures in vertical orientation.**
- The 3D pictures are saved in MPO format (3D).
- Zoom position is fixed to Wide.
- The picture size is fixed to 2M (16:9).
- The ISO sensitivity is automatically adjusted. However, the ISO sensitivity is increased to make the shutter speed become high-speed.
- Motion pictures cannot be recorded during 3D Photo Mode.
- Recording may not be possible depending on the recording conditions for the following cases. You may not get a 3D effect or the picture may be warped even if it was possible to record.
  – When the subject is too dark/bright
  – When the brightness of the subject changes
  – When the subject is moving
  – Not enough contrast

[Rec] Mode:

Taking pictures while changing the skin texture (Cosmetic Mode)

Pictures can be taken while setting the texture or clearness of the skin.

1 **In Recording Mode touch [ ].**

2 **Touch [ ].**

3 **Touch the item.**

- Touch [▲]/[▼] to set the clearness.



Item	Adjustment contents
[Soft Skin]	To take a picture with soft skin.
[Natural Skin]	To bring out the original beauty of the skin.
[Summer Look]	To create healthy tanned skin such as at the beach.

- For each of the items, any of 3 levels of clearness can be selected.

4 **Touch [OK].**

Note

- Effect is not applied if no skin tone is detected.
- Cosmetic Mode setting set is memorized even if the camera is turned off.
- The following items cannot be set because the camera automatically adjusts them to the optimal setting.
  – [Sensitivity]/[Macro Mode]/[i.Exposure]/[Min. Shtr Speed]/[i.Resolution]/[Color Mode]
- In Cosmetic Mode, areas of the background that have a similar tone to skin color will have the same effect applied. The effect may not easily be recognized if the picture is not bright enough.

Applicable modes: iA SCN 3D

Taking a Picture with Face Recognition Function

Face Recognition is a function which finds a face resembling a registered face and prioritizes focus and exposure automatically. Even if the person is located towards the back or on the end of a line in a group photo, the camera can still take a clear picture.

[Face Recog.] is initially set to [Off] on the camera.
[Face Recog.] will turn [On] automatically when the face image is registered.



- **The following functions will also work with the Face Recognition function.**

In Recording Mode

– Display of corresponding name when camera detects a registered face* (if name has been set for the registered face)

In Playback Mode

– Display of name and age (if information has been registered)
– Selective playback of pictures chosen from pictures registered with Face Recognition ([Category Selection] in [Filtering Play]).

* Names of up to 3 people are displayed. Precedence for the names displayed when taking pictures is determined according to the order of registration.

Note

- During the Burst Mode, [Face Recog.] picture information can be attached to only the first picture.
- [Face Recog.] does not guarantee secure recognition of a person.
- Face Recognition may take more time to select and recognize distinctive facial features than regular Face Detection.
- Even when Face Recognition information has been registered, pictures taken with [Name] set to [OFF] will not be categorised by Face Recognition in [Category Selection] ([Filtering Play]).
- **Even when Face Recognition information is changed (P71), Face Recognition information for the pictures already taken will not be changed.**
  For instance, if the name is changed, pictures recorded before the change will not be categorised by Face Recognition in [Category Selection] ([Filtering Play]).
- To change the name information of the pictures taken, perform the [Replace] in [Face Rec Edit] (P111).
- [Face Recog.] cannot be used in the following cases.
  – In [Transform], [Panorama Assist], [Night Scenery], [Handheld Night Shot], [Food], [Hi-Speed Burst], [Flash Burst], [Starry Sky], [Fireworks], [Aerial Photo] or [Film Grain] in Scene Mode
  – When recording motion pictures

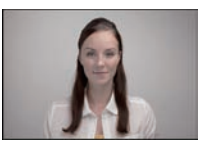
Face Settings

You can register information such as names and birthdays for face images of up to 6 people.
Registration can be facilitated by taking multiple face images of each person. (up to 3 pictures/registration)

■ Point of recording when registering the face images

- Face front with eyes open and mouth closed, making sure the outline of the face, the eyes, or the eyebrows are not covered with the hair when registering.
- Make sure there is no extreme shading on the face when registering. (Flash will not flash during registration.)

(Good example for registering)



■ When it is not recognising during recording

- Register the face of same person indoors and outdoors, or with different expressions or angles. (P71)
- Additionally register at the location of recording.
- When a person who is registered is not recognized, correct by re-registering.
- Face Recognition may not be possible or may not recognize faces correctly even for registered faces, depending on the facial expression and environment.

1 Select [Face Recog.] on the [Rec] Mode menu. **(P36)**

2 Touch [MEM] ([Memory]).

3 Touch [New].

- [New] will not display if there are 6 people already registered. Delete a person already registered to register a new person.

4 Take the picture adjusting the face with the guide.

- The faces of subjects other than people (pets, etc.) cannot be registered.
- An information for taking face images is displayed when [ⓘ] is touched.
- Confirmation screen is displayed. It is executed when [Yes] is selected.

5 Set the item.

• You can register up to 3 face images.

Item	Description of settings
[Name]	It is possible to register names. **1 Select [SET].** **2 Enter the name.** • For details on how to enter characters, refer to “Entering Text” section on P72.
[Age]	It is possible to register the birthday. **1 Select [SET].** **2 Set the Year/Month/Day by touching [▲]/[▼] for each item, and touch [Set].**
[Focus Icon]	Change the displayed focus icon when the subject is focused.
[Add Images]	To add additional face images. **(Add Images)** **1 Touch [Add].** **2 Perform step 4 in “Face Settings”.**
	To delete one of the face images. **(Delete)** **Touch the face image to delete.** • If there is only one image registered, it cannot be deleted.

• Exit the menu after it is set.

Change or delete the information for a registered person

You can modify the pictures or information of an already registered person. You can also delete the information of the registered person.

1 Select [Face Recog.] from the [Rec] Mode menu. (P36)
2 Touch [ ] ([Memory]).
3 Touch the face image to edit or delete.
4 Set the item.

Item	Description of settings
[Info Edit]	Changing the information of an already registered person. **Perform step 5 in "Face Settings".**
[Priority]	The focus and exposure are preferentially adjusted for higher-priority faces. **1 Touch the position you wish to change in the order of registration.** **2 Touch [Set].**
[Delete]	Deleting information of a registered person.

• Exit the menu after it is set.

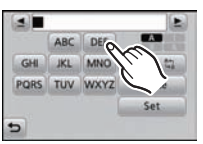
Entering Text

It is possible to enter babies' and pets' names and the names of travel destinations when recording. (Only alphabetical characters and symbols can be entered.)
You can use the stylus pen (supplied) if it is hard to operate with your fingers.

1 Display the entry screen.

- You can display the entry screen via the following operations.
  – [Name] of [Baby1]/[Baby2] or [Pet] in Scene Mode
  – [Name] in [Face Recog.]
  – [Location] in [Travel Date]
  – [Title Edit]

2 Enter characters.



- Touch [Aa] to switch text between [A] (capitals), [a] (small case), [1] (numbers) and [&] (special characters).
- Touching [◀]/ [▶] will move the position of the text input cursor left and right.
- Touch [␣] to enter a blank, or [Delete] to delete an entered character.
- The following characters and numbers can be entered.
  – A maximum of 30 characters can be entered (Maximum of 9 characters when setting names in [Face Recog.]).
    ✳ A maximum of 15 characters can be entered for [\ ], [「], [」], [•] and [—] (Maximum of 6 characters when setting names in [Face Recog.]).

3 Touch [Set].

Note

- Text can be scrolled if all of the entered text does not fit on the screen.
- It is displayed in order of title, location, [Name] ([Baby1]/[Baby2], [Pet]), [Name] ([Face Recog.]).

Using the [Rec] Mode Menu

[Flash]

Applicable modes: iA, Camera, SCN, 3D, Creative Video

For details on [Rec] Mode menu settings, refer to P36.

Set the flash to match the recording.

[ϟA] ([Auto])	The flash is automatically activated when the recording conditions make it necessary.
[ϟA👁] ([Auto/Red-Eye])*	The flash is automatically activated when the recording conditions make it necessary. It is activated once before the actual recording to reduce the red-eye phenomenon (eyes of the subject appearing red in the picture) and then activated again for the actual recording. • **Use this when you take pictures of people in low lighting conditions.**
[ϟ] ([Forced Flash On]) **[ϟ👁] ([Forced On/ Red-Eye])***	The flash is activated every time regardless of the recording conditions. • **Use this when your subject is back-lit or under fluorescent light.**
[ϟS👁] ([Slow Sync./ Red-Eye])*	If you take a picture with a dark background landscape, this feature will slow the shutter speed when the flash is activated so that the dark background landscape will become bright. Simultaneously it reduces the red-eye phenomenon. • **Use this when you take pictures of people in front of a dark background.**
[⊘] ([Forced Flash Off])	The flash is not activated in any recording conditions. • **Use this when you take pictures in places where the use of the flash is not permitted.**

✳ **The flash is activated twice. The subject should not move until the second flash is activated. Interval until the second flash depends on the brightness of the subject. [Red-Eye Removal] (P91) on the [Rec] Mode menu is set to [On], [✎] appears on the flash icon.**

■ Available Flash Settings in Recording Mode

The available flash settings depend on the Recording Mode.
(○: Available, —: Not available, ●: Scene Mode initial setting)

	ϟA	ϟA👁	ϟ	ϟ👁	ϟS👁	⊘
iA	○*	—	—	—	—	○
	○	○	○	—	○	○
	○	●	○	—	—	○
	○	●	○	—	—	○
	○	●	○	—	—	○
	—	—	—	—	—	●
	—	—	—	—	—	●
	●	—	○	—	—	○
	—	—	—	—	●	○
	—	—	—	—	—	●
	—	—	—	—	—	●
	○	—	○	—	—	●
	—	—	—	○	●	○
	—	—	—	○	○	●
1	○	●	○	—	—	○
2	○	●	○	—	—	○

	ϟA	ϟA👁	ϟ	ϟ👁	ϟS👁	⊘
	○	—	○	—	—	●
	—	—	—	—	—	●
	○	—	○	—	—	●
	—	—	—	—	—	●
	—	—	●	—	—	—
	—	—	—	—	—	●
	—	—	—	—	—	●
	—	—	●	—	—	○
	●	—	○	—	—	○
	—	—	—	—	—	●
	●	—	○	—	—	○
	●	—	○	—	—	○
	—	—	—	—	○	●
	●	○	○	—	—	○
3D	—	—	—	—	—	○
	○	○	○	—	—	○

* [iϟA] is displayed.

- The flash setting may change if the Recording Mode is changed. Set the flash setting again if necessary.
- The flash setting is memorized even if the camera is turned off. However, the Scene Mode flash setting is reset to the initial setting when the Scene Mode is changed.
- Flash will not be activated when recording motion picture.

■ The available flash range

• The available flash range is an approximation.

	Wide	Tele
[Auto] in [Sensitivity]	60 cm (1.97 feet) to 5.9 m (19.4 feet)	1.0 m (3.28 feet) to 2.5 m (8.20 feet)

■ Shutter speed for each flash setting

Flash setting	Shutter speed (Sec.)
ϟA	1/60∗1 to 1/4000
ϟA👁	
ϟ ϟ👁	

Flash setting	Shutter speed (Sec.)
ϟS👁	1∗1 to 1/4000 1 or 1/8 to 1/4000∗2 1 or 1/4 to 1/4000∗2, 3
⊛	

∗1 It may vary depending on the [Min. Shtr Speed] setting.
∗2 When [Min. Shtr Speed] is set to [Auto].
∗3 When [Sensitivity] is set to [ISO].
• ∗2: The shutter speed becomes a maximum of 1 second in the following cases.
– When the Optical Image Stabilizer is set to [Off].
– When the camera has determined that there is very little jitter when the Optical Image Stabilizer is set to [On].
• In Intelligent Auto Mode, shutter speed changes depending on the identified scene.
• In Scene Mode, shutter speed will be different from the above table.

Note

• If you bring the flash too close to an object, the object may be distorted or discolored by the heat or lighting from the flash.
• When you take a picture beyond the available flash range, the exposure may not be adjusted properly and the picture may become too bright or too dark.
• When the flash is being charged, the flash icon blinks red, and you cannot take a picture even when you press the shutter button fully.
• When you take a picture beyond the available flash range, the White Balance may not be properly adjusted.
• The flash effect may not be sufficient when using [Flash Burst] in Scene Mode or when shutter speed is fast.
• It may take time to charge the flash if you are taking pictures in quick succession. Take a picture after the access indication disappears.
• The Red-Eye Reduction effect differs between people. Also, if the subject is far away from the camera or was not looking at the first flash, the effect may not be evident.

[Selftimer]

Applicable modes: iA SCN 3D

This is for recording still pictures using the timer.

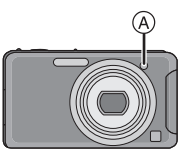
[$\ddot{\text{O}}_{10}$] ([10 sec.])	Pictures are taken 10 seconds after shutter is pressed.
[$\ddot{\text{O}}_{2}$] ([2 sec.])	Pictures are taken 2 seconds after shutter is pressed. • When using a tripod etc., this setting is a convenient way to avoid the jitter caused by pressing the shutter button.
[$\ddot{\text{O}}_{\text{OFF}}$] ([Off])	–

• Press the shutter button halfway to focus and then press it fully to take the picture. The self-timer indicator blinks and the shutter is activated after 10 seconds (or 2 seconds).



Note

• When you press the shutter button once fully, the subject is automatically focused just before recording. In dark places, the self-timer indicator Ⓐ will blink and then may turn on brightly operating as an AF Assist Lamp to allow the camera to focus on the subject.
• We recommend using a tripod when recording with the self-timer.
• Self-timer cannot be set to 10 seconds in [Self Portrait] in Scene Mode.
• Setting of the self-timer cannot be performed in following conditions.
– In [Hi-Speed Burst] in Scene Mode
– When recording motion pictures



[Aspect Ratio]

Applicable modes: iA SCN 3D

This allows you to select the aspect ratio of the pictures to suit printing or the playback method.

[4:3]	[Aspect Ratio] of a 4:3 TV
[3:2]	[Aspect Ratio] of a 35 mm film camera
[16:9]	[Aspect Ratio] of a high-definition TV, etc.
[1:1]	Square aspect ratio

Note

• The ends of the recorded pictures may be cut at printing so check before printing. (P182)

[Picture Size]

Applicable modes: iA, Camera, SCN, 3D, Creative Control

Set the number of pixels. The higher the numbers of pixels, the finer the detail of the pictures will appear even when they are printed onto large sheets.

[Aspect Ratio]: [4:3]

[12M]) ([12M])	4000×3000
[8M EZ]) ([8M EZ])*	3264×2448
[5M EZ]) ([5M EZ])	2560×1920
[3M EZ]) ([3M EZ])*	2048×1536
[2M EZ]) ([2M EZ])*	1600×1200
[0.3M EZ]) ([0.3M EZ])	640×480

[Aspect Ratio]: [3:2]

[10.5M]) ([10.5M])	4000×2672
[7M EZ]) ([7M EZ])*	3264×2176
[4.5M EZ]) ([4.5M EZ])*	2560×1712
[2.5M EZ]) ([2.5M EZ])*	2048×1360
[0.3M EZ]) ([0.3M EZ])*	640×424

[Aspect Ratio]: [16:9]

[9M]) ([9M])	4000×2248
[6M EZ]) ([6M EZ])*	3264×1840
[3.5M EZ]) ([3.5M EZ])*	2560×1440
[2M EZ]) ([2M EZ])*	1920×1080
[0.2M EZ]) ([0.2M EZ])*	640×360

[Aspect Ratio]: [1:1]

[9M]) ([9M])	2992×2992
[6M EZ]) ([6M EZ])*	2448×2448
[3.5M EZ]) ([3.5M EZ])*	1920×1920
[2.5M EZ]) ([2.5M EZ])*	1536×1536
[0.2M EZ]) ([0.2M EZ])*	480×480

* This item cannot be set in the Intelligent Auto Mode.

Note

- If you change the aspect ratio, set the picture size again.
- In specific modes, Extended Optical Zoom cannot be used, and the picture size for [EZ] is not displayed. For details regarding modes in which Extended Optical Zoom cannot be used, refer to P55.
- Pictures may appear in mosaic depending on the subject and the recording conditions.

[Quality]

Applicable modes: iA SCN 3D

Set the compression rate at which the pictures are to be stored.

[▪▪▪] ([Fine])	when giving priority to the picture quality
[▪▪] ([Standard])	when using the standard picture quality and increasing the number of pictures to be recorded without changing the number of pixels

Note

- The setting is fixed to [▪▪] in [Transform], [Handheld Night Shot], [High Sens.], [Hi-Speed Burst] or [Flash Burst] in Scene Mode.
- The following icons are displayed during the 3D recording.

[3D▪▪▪]: 3D+Fine (Both MPO images and fine JPEG images are recorded simultaneously.)

[3D▪▪]: 3D+Standard (Both MPO images and standard JPEG images are recorded simultaneously.)

[Sensitivity]

Applicable modes: iA, SCN, 3D

This allows the sensitivity to light (ISO sensitivity) to be set. Setting to a higher number enables pictures to be taken even in dark places without the resulting pictures coming out dark.

[ISO AUTO] ([Auto])	The ISO sensitivity is automatically adjusted according to the brightness. • Maximum [ISO400] (With the flash on [ISO1600])
[iISO] ([i.ISO])	The ISO sensitivity is adjusted according to the movement of the subject and the brightness. • Maximum [ISO1600]
[ISO 100] ([100])	The ISO sensitivity is fixed to various settings.
[ISO 200] ([200])	
[ISO 400] ([400])	
[ISO 800] ([800])	
[ISO 1600] ([1600])	

	[ISO100] ⇐	⇒ [ISO1600]
Recording location (recommended)	When it is light (outdoors)	When it is dark
Shutter speed	Slow	Fast
Noise	Less	Increased
Jitter of the subject	Increased	Less

■ About [iISO] (Intelligent ISO sensitivity control)

The camera detects movement of the subject and then automatically sets the optimum ISO sensitivity and shutter speed to suit the movement of the subject and brightness of the scene to minimize the jitter of the subject.

• The shutter speed is not fixed when the shutter button is pressed halfway. It is continuously changing to match the movement of the subject until the shutter button is pressed fully.

Note

• For the focus range of flash when [Auto] is set, refer to P75.
• The setting is fixed to [iISO] in the following cases.
– In [Sports], [Baby1]/[Baby2], [Pet] and [Flash Burst] in Scene Mode
• The setting is fixed to [Auto] when recording motion pictures.

[White Balance]

Applicable modes: iA, SCN, 3D, creative

In sunlight, under incandescent lights or in other such conditions where the color of white takes on a reddish or bluish tinge, this item adjusts to the color of white which is closest to what is seen by the eye in accordance with the light source.

[AWB] ([Auto White Balance])	Automatic adjustment
[☼] ([Daylight])	When taking pictures outdoors under a clear sky
[☁] ([Cloudy])	When taking pictures outdoors under a cloudy sky
[⌂] ([Shade])	When taking pictures outdoors in the shade
[☼] ([Incandescent])	When taking pictures under incandescent lights
[▬] ([White Set])	Value set by using [▬ SET]

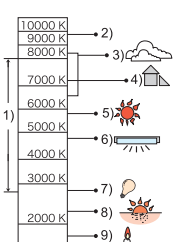
Note

- Under fluorescent lighting, LED lighting fixture etc., the appropriate White Balance will vary depending on the lighting type, so use [AWB] or [▬ SET].
- The White Balance setting is memorized even if the camera is turned off. (However, the White Balance setting for a Scene Mode returns to [AWB] when the Scene Mode is changed.)
- White Balance is fixed to [AWB] in following conditions.
  – [Scenery], [Night Portrait], [Night Scenery], [Handheld Night Shot], [Food], [Party], [Candle Light], [Sunset], [Flash Burst], [Starry Sky], [Fireworks], [Beach], [Snow], [Aerial Photo] or [Film Grain] in Scene Mode

■ Auto White Balance

Depending on the conditions prevailing when pictures are taken, the pictures may take on a reddish or bluish tinge. Furthermore, when a multiple number of light sources are being used or there is nothing with a color close to white, Auto White Balance may not function properly. In this case, set the White Balance to a mode other than [AWB].

1 Auto White Balance will work within this range
2 Blue sky
3 Cloudy sky (Rain)
4 Shade
5 Sunlight
6 White fluorescent light
7 Incandescent light bulb
8 Sunrise and sunset
9 Candlelight
K=Kelvin Color Temperature



Setting the White Balance manually

Set the White Balance value. Use to match the condition when taking photographs.

1 Touch [ ].

2 Touch [SET].

3 Aim the camera at a sheet of white paper etc., so that the frame in the center is filled by the white object only and then touch [Set].



- If the subject is overly bright or overly dark, you may not be able to set the White Balance. If this is the case, adjust to an appropriate brightness and then set the White Balance again.
- Exit the menu after it is set.

Finely adjusting the White Balance

You can finely adjust the White Balance when you cannot acquire the desired hue by setting the White Balance.

1 Touch [ ]/[ ]/[ ]/[ ]/[ ] from the White Balance.

2 Touch [ ].

3 Drag the slide bar to make fine adjustments.

[Red]: Touch when the hue is bluish.

[Blue]: Touch when the hue is reddish.

- Select [0] to return to the original White Balance.

4 Touch [Set].

- Exit the menu after it is set.

Note

- The White Balance icon on the screen turns red or blue.
- You can finely adjust the White Balance independently for each White Balance item.
- The White Balance fine adjustment setting is reflected in the picture when using the flash.
- The White Balance fine adjustment setting is memorized even if the camera is turned off.
- The White Balance fine adjustment level in [ ] returns to [0] when you reset the White Balance using [SET].
- White Balance fine adjustment cannot be set for [B/W], [Sepia], [Cool] and [Warm] in [Color Mode].

[AF Mode]

Applicable modes: iA, SCN, 3D, creative

This allows the focusing method that suits the positions and number of the subjects to be selected.

[Face Detection]	The camera automatically detects the person's face. The focus and exposure can then be adjusted to fit the face no matter what portion of the picture it is in. (max. 15 areas)
[AF Tracking]	Focus can be adjusted to a specified subject. Focus will keep on following the subject even if it moves. (Dynamic tracking) • Refer to P52 for details.
[23-Area]*	Up to 23 points for each AF area can be focused. This is effective when the subject is not in the center of the screen. (AF area frame will be same as image aspect ratio setting.)
[1-Area]	The camera focuses on the subject in the AF area on the center of the screen.
[Spot]*	The camera focuses on a limited narrow area in the screen.

* [1-Area] will be used during motion picture recording.

Note

- It will be fixed to [Face Detection] when the [Face Recog.] is set to [On].
- The AF Mode is fixed to [1-Area] in [Starry Sky], [Fireworks] in Scene Mode.
- It is not possible to set [Face Detection] in the following cases.
  – In [Panorama Assist], [Night Scenery], [Handheld Night Shot], [Food], and [Aerial Photo] in Scene Mode.

■ About [👤] (Face Detection)



The following AF area frames are displayed when the camera detects the faces.
Yellow:
When the shutter button is pressed halfway, the frame turns green when the camera is focused.
White:
Displayed when more than one face is detected. Other faces that are the same distance away as faces within the yellow AF areas are also focused.

Note

- Under certain picture-taking conditions including the following cases, the face detection function may fail to work, making it impossible to detect faces. [AF Mode] is switched to [📷] ([■] while motion pictures are taken).
  – When the face is not facing the camera
  – When the face is at an angle
  – When the face is extremely bright or dark
  – When there is little contrast on the faces
  – When the facial features are hidden behind sunglasses, etc.
  – When the face appears small on the screen
  – When there is rapid movement
  – When the subject is other than a human being
  – When the camera is shaking
  – When Digital Zoom is used
- If the camera is registering something other than someone's face, change the settings to something other than [👤].

[Macro Mode]

Applicable modes: iA SCN 3D

This mode allows you to take close-up pictures of a subject, e.g. when taking pictures of flowers.

[AF] **([AF Macro])**	You can take pictures of a subject as close as 3 cm (0.10 feet) from the lens by pressing the zoom lever upmost to Wide (1×).
[ ] **([Macro Zoom])**	You can take a picture with the Digital Zoom up to 3× while maintaining the distance to the subject for the extreme Wide position [3 cm (0.10 feet)]. • The image quality is poorer than during normal recording. • Zoom range will be displayed in blue. (Digital Zoom range)
[OFF] **([Off])**	–

Note

- We recommend using a tripod and the self-timer.
- We recommend setting the flash to [ ] when you take pictures at close range.
- If the distance between the camera and the subject is beyond the focus range of the camera, the picture may not be properly focused even if the focus indication lights.
- When a subject is close to the camera, the effective focus range is significantly narrowed. Therefore, if the distance between the camera and the subject is changed after focusing on the subject, it may become difficult to focus on it again.
- Macro Mode gives priority to a subject close to the camera. Therefore, if the distance between the camera and the subject is far, it takes longer to focus on it.
- When you take pictures at close range, the resolution of the periphery of the picture may decrease slightly. This is not a malfunction.
- Macro Zoom Mode cannot be used in the following cases.
  – In 3D Photo Mode
  – When [ ] is set in [AF Mode]

[Quick AF]

Applicable modes: iA SCN 3D

As long as the camera is held steady, the camera will automatically adjust the focus and focus adjustment will then be quicker when the shutter is pressed. This is useful when you do not want to miss a picture-taking opportunity.

[Q.AF] ([On])/[Q.AF] ([Off])

Note

- The battery will be consumed faster than usual.
- Press the shutter button halfway again when it is difficult to focus on the subject.
- It does not operate during AF tracking.
- [Quick AF] cannot be set when in [Night Portrait], [Night Scenery], [Handheld Night Shot], [Starry Sky] and [Fireworks] in Scene Mode.

[Face Recog.]

• Refer to P68 for details.

[Exposure]

Applicable modes: iA SCN 3D

Use this function when you cannot achieve appropriate exposure due to the difference in brightness between the subject and the background. Look at the following examples.

Underexposed **Properly exposed** **Overexposed**





Compensate the exposure towards positive.

Compensate the exposure towards negative.

1 **Adjust the exposure by dragging the slide bar.**
- Select [0 EV] to return to the original exposure.

2 **Touch [Exit].**
- Exit the menu after it is set.
- The exposure compensation value appears on the screen.



Note
- EV is an abbreviation of [Exposure Value], a unit indicating the amount of exposure. The EV changes with the aperture value or the shutter speed.
- The set exposure value is memorized even if the camera is turned off.
- The compensation range of the exposure will be limited depending on the brightness of the subject.
- Exposure Compensation cannot be used with [Starry Sky] in scene mode.

[Auto Bracket]

Applicable modes: iA SCN 3D

In this mode, 3 pictures are automatically recorded in the selected exposure compensation range each time the shutter button is pressed.

With Auto Bracket ±1 EV

1st picture	2nd picture	3rd picture
		
±0 EV	−1 EV	+1 EV

1 **Touch [ ] during exposure compensation.**

2 **Adjust the compensation range of the exposure by touching [ ]/[ ].**
- When you do not use Auto Bracket, select [OFF] (0).

3 **Touch [Exit].**
- Exit the menu after it is set.



Note
- When taking pictures using Auto Bracket after setting the exposure compensation range, the pictures taken are based on the selected exposure compensation range. Exposure value is displayed on the screen when the exposure is compensated.
- The exposure may not be compensated with Auto Bracket depending on the brightness of the subject.
- **[ ] is set for the flash when Auto Bracket is set.**
- Setting of the Auto Bracket cannot be performed in following conditions.
  – In [Transform], [Panorama Assist], [Handheld Night Shot], [Hi-Speed Burst], [Flash Burst], [Starry Sky], [Pin Hole], [Film Grain] and [Photo Frame] in Scene Mode
  – When recording motion pictures

[i.Exposure]

Applicable modes: iA SCN 3D

Contrast and exposure will be adjusted automatically when there is a big difference in brightness between the background and subject, to bring the image close to real life.

[i◑] ([On])/[i◑] ([Off])

Note

- Even when the [Sensitivity] is set to [ISO100], [Sensitivity] may be set higher than [ISO100] if the picture is taken with [i.Exposure] set to valid.
- Compensation effect may not be achieved depending on the conditions.
- [i◑] in the screen turns to yellow when [i.Exposure] is in effect.

[Min. Shtr Speed]

Applicable modes: iA SCN 3D

You can take bright pictures in dark places by setting [Min. Shtr Speed] slower. Also, you can set it faster to reduce the blur of the subject.

[MIN. AUTO] ([Auto]), [MIN. 1/125] ([1/125]), [MIN. 1/60] ([1/60]), [MIN. 1/30] ([1/30]), [MIN. 1/15] ([1/15]), [MIN. 1/8] ([1/8]), [MIN. 1/4] ([1/4]), [MIN. 1/2] ([1/2]), [MIN. 1] ([1])

Minimum shutter speed setting	1/125 ⟵ 1	
Brightness	Darker	Brighter
Jitter	Less	More

Note

- This should usually be set to [Auto] to take pictures. (When you select a minimum shutter speed other than [Auto], [MIN] appears on the screen.)
- When [Auto] is selected, shutter speed may be set up to 1 second when there is not much jitter to adjust with the [Stabilizer], or when [Stabilizer] is set to [Off].
- Setting [Min. Shtr Speed] to slower speed might increase the chance of jitter, so we recommend using a tripod and the self-timer for taking pictures.
- Setting [Min. Shtr Speed] to faster speed might make the picture darker, so we recommend recording the picture in a well-lit area. If correct exposure cannot be achieved, [MIN] will flash in red when the shutter button is pressed halfway.

[i.Resolution]

Applicable modes: iA SCN 3D

Pictures with sharp profile and resolution can be taken by utilising the Intelligent Resolution Technology.

[i.R ON] ([On])	[i.Resolution] is activated.
[i.R i.ZOOM] ([i.Zoom])	[i.Resolution] is activated, and the zoom magnification is increased by approximately 1.3× without noticeable deterioration in the picture.
[i.R OFF] ([Off])	—

Note

• Refer to P53 for information about the Intelligent Zoom.

[Digital Zoom]

Applicable modes: iA SCN 3D

This can enlarge subjects even more than the Optical Zoom, Extended Optical Zoom or [i.Zoom].

[ON] ([On])/[OFF] ([Off])

Note

• Refer to P53 for details.
• The setting is fixed to [On] in Macro Zoom Mode.

[Burst]

Applicable modes: iA, camera, SCN, 3D, creative

Pictures are taken continuously while the shutter button is pressed.

[ON] ([On])/[OFF] ([Off])

Burst speed (pictures/second)	approx. 3.7
Number of recordable pictures	max. 7 pictures

Note

- Focus, exposure, and White Balance will be fixed to the settings for the first picture. Depending on changes in the brightness of the subject, the recording may be brighter or darker from the second picture.
- When the Self-timer is used, the number of recordable pictures in Burst Mode is fixed to 3.
- The burst speed (pictures/second) may become slower depending on the recording environment such as in dark places, if the ISO sensitivity is high etc.
- Burst Mode is not canceled when the camera is switched off.
- If you take pictures in Burst Mode with the built-in memory, it will take time to write the picture data.
- **[ ] is set for the flash when burst is set.**
- You cannot use Burst Mode in following conditions.
  - In [Panorama Assist], [Handheld Night Shot], [Hi-Speed Burst], [Flash Burst], [Starry Sky], [Fireworks], [Pin Hole] and [Photo Frame] in Scene Mode

[Color Mode]

Applicable modes: iA, camera, SCN, 3D, creative

Using these modes, the pictures can be made sharper or softer, the colors of the pictures can be turned into sepia colors or other color effects can be achieved.

[STD.] ([Standard])	This is the standard setting.
[Happy] ([Happy])∗1	Image with enhanced brightness and vividness.
[NAT] ([Natural])∗2	The picture becomes softer.
[VIVID] ([Vivid])∗2	The picture becomes sharper.
[B/W] ([B/W])	The picture becomes black and white.
[SEPIA] ([Sepia])	The picture becomes sepia.
[COOL] ([Cool])∗2	The picture becomes bluish.
[WARM] ([Warm])∗2	The picture becomes reddish.

∗1 This can be set only when Intelligent Auto Mode is set.
∗2 This can be set only during Normal Picture Mode.

[AF Assist Lamp]

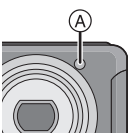
Applicable modes: iA, SCN, 3D

AF Assist Lamp will illuminate the subject when the shutter button is pressed half-way making it easier for the camera to focus when recording in low light conditions. (Larger AF area is displayed depending on the recording conditions.)

[AF ON] ([On])/[AF OFF] ([Off])

Note

- The effective range of the AF Assist Lamp is 1.5 m (4.92 feet).
- When you do not want to use the AF Assist Lamp Ⓐ (e.g. when taking pictures of animals in dark places), set the [AF Assist Lamp] to [Off]. In this case, it will become more difficult to focus on the subject.
- [AF Assist Lamp] is fixed to [Off] in [Self Portrait], [Scenery], [Night Scenery], [Handheld Night Shot], [Sunset], [Fireworks] and [Aerial Photo] in Scene Mode.



[Red-Eye Removal]

Applicable modes: iA, SCN, 3D

When Red-Eye Reduction ([AUTO], [ ], [SLOW]) is selected, Digital Red-Eye Correction is performed whenever the flash is used. The camera automatically detects red-eye and corrects the picture.

[RED-EYE ON] ([On])/[RED-EYE OFF] ([Off])

Note

- Only available when [AF Mode] is set to [ ] and Face Detection is active.
- Under certain circumstances, red-eye cannot be corrected.

[Stabilizer]

Applicable modes: iA SCN 3D

Using this mode, jitter during picture taking is detected, and the camera automatically compensates for the jitter, enabling jitter-free images to be taken.
When recording motion pictures, “Active Mode” (stabilizer for motion pictures) will automatically function. This decreases the jitter of the image when recording motion picture while walking, etc.

[ON] ([On])/[OFF] ([Off])

Note

- The stabilizer function may not be effective in the following cases.
  Be careful of camera jitter when you press the shutter button.
  – When there is a lot of jitter.
  – When the zoom magnification is high.
  – In Digital Zoom range.
  – When taking pictures while following a moving subject.
  – When the shutter speed becomes slower to take pictures indoors or in dark places.
- The setting is fixed to [On] in [Self Portrait] or [Handheld Night Shot] in Scene Mode.
- The setting is fixed to [Off] in [Starry Sky] in Scene Mode.
- In “Active Mode”, stronger effect of the correction can be achieved at the wide end.
- Active Mode will not work in the following cases:
  – [VGA] of [MP4] is selected.
  – [Pin Hole] or [Film Grain] is selected in Scene Mode.

[Date Stamp]

Applicable modes: iA SCN 3D

You can take a picture with date and time of recording.

[DATE] ([W/O Time])	Stamp the year, month, and day.
[TIME] ([With Time])	Stamp the year, month, day, hour, and minutes.
[OFF] ([Off])	—

Note

- **Date information for pictures recorded with the [Date Stamp] set cannot be deleted.**
- **When printing pictures with [Date Stamp] at a shop or with a printer, the date will be printed on top of the other if you choose to print with the date.**
- If the time has not been set, you cannot stamp with the date information.
- The setting is fixed to [Off] in the following cases.
  – In [Panorama Assist], [Hi-Speed Burst] and [Flash Burst] in Scene Mode
  – [Auto Bracket] and [Burst] in [Rec] Mode menu
  – When recording motion pictures
- [Text Stamp], [Resize] and [Cropping] cannot be set for pictures recorded with [Date Stamp] set.
- Even if you take a picture with [Date Stamp] set to [Off], it is possible to stamp dates into the recorded pictures using [Text Stamp] (P102) or setup the Date print (P109, 159).

[Clock Set]

- Refer to P17 for details.

Using the [Motion Picture] Mode Menu

[Rec Mode]

Applicable modes: iA, Camera, SCN, 3D, Creative Video

For details on [Motion Picture] Mode menu settings, refer to P36.

This sets up the data format of motion pictures.

[AVCHD]	Select this format to record HD (high definition) video for playback on your HDTV using an HDMI connection.
[MP4]	Select this format to record standard definition video for playback on your PC.

[Rec Quality]

Applicable modes: iA SCN 3D

This sets up the picture quality of motion pictures.

When [AVCHD] is selected

Item	Picture size/Bit rate	fps	Aspect ratio
[FSH]	1920×1080 pixels/Approx. 17 Mbps	60i (CCD output is 30 fps)	16:9
[SH]	1280×720 pixels/Approx. 17 Mbps	60p (CCD output is 30 fps)	

When [MP4] is selected

Item	Picture size/Bit rate	fps	Aspect ratio
[FHD]	1920×1080 pixels/Approx. 20 Mbps	30	16:9
[HD]	1280×720 pixels/Approx. 10 Mbps		
[VGA]	640×480 pixels/Approx. 4 Mbps		4:3

Note

- What is bit rate
  This is the volume of data for a definite period of time, and the quality becomes higher when the number gets bigger. This unit is using the “VBR” recording method. “VBR” is an abbreviation of “Variable Bit Rate”, and the bit rate (volume of data for definite period of time) is changed automatically depending on the subject to record. Therefore, the recording time is shortened when a subject with fast movement is recorded.
- To play back AVCHD motion pictures recorded with this unit on Panasonic Blu-ray Disc Players (DMP-BD30/DMP-BD31/DMP-BD50) it is necessary to update the firmware of the Blu-ray Disc Player.
  You can download the latest firmware version from the following website.
  http://panasonic.net/support/

[Continuous AF]

Applicable modes: iA SCN 3D

It will continually keep on focusing on the subject that the focus was once set for.

[C-AF ON] ([On])/[C-AF OFF] ([Off])

Note

- Set this function to [Off] if you wish to fix the focus on the position where you started the motion picture recording.
- In [Starry Sky] and [Fireworks] in Scene Mode, this setting is fixed to [Off].

[Wind Cut]

Applicable modes: iA SCN 3D

If wind noise is detected when recording sound, this mode prevents wind-noise from being recorded.

[ ] ([On])/[ ] ([Off])

Note

- Sound quality may be different than usual when [Wind Cut] is set.

Various methods to playback

You can play back the recorded pictures in various methods.

1 In Playback Mode touch [ ].

2 Touch the Playback Mode icon.

• Following items can be selected.

[2D/3D Settings]✳	**[Filtering Play]** (P99)
[Normal Play] (P30)	**[Playback Album]** (P100)
[Slide Show] (P97)	**[Calendar]** (P100)

✳ The playback method for the 3D pictures can be switched. This menu is only displayed during HDMI output. Refer to P148 for details about the playback method.

[Slide Show]

You can play back the pictures you have taken in synchronisation with music, and you can do this in sequence while leaving a fixed interval between each of the pictures.
You can also put together a slide show composed of only still pictures, only motion pictures, only 3D pictures etc.
We recommend this feature when you view your pictures by connecting the camera to a TV.

1 Touch the group to playback.



- Refer to P148 for the method to playback [3D Play] pictures in 3D.
- In [My Photo Album], touch the album you wish to play back.
  For details on [My Photo Album], refer to P114.
- In [Category Selection], touch the category you wish to play back.
  For details on categories, refer to P99.

2 Touch [Start].

■ Operations performed during slide show

1 Display control panel by touching screen.

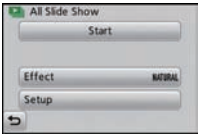
- If no operation is done for 2 seconds, it will return to original status.

2 Operate control panel by touching.

▶/II	Play/Pause	■	Exit slide show
⏮	Back to previous picture (while pausing/playing back motion pictures)	⏭	Ahead to next picture (while pausing/playing back motion pictures)
+	Increase volume level	−	Reduce volume level

- Normal playback resumes after the slide show finishes.

■ Changing the slide show settings



You can change the settings for Slide Show Playback by selecting [Effect] or [Setup] on the slide show menu screen.

[Effect]

This allows you to select the screen effects or music effects when switching from one picture to the next.

[NATURAL], [SLOW], [SWING], [URBAN], [OFF], [AUTO]

- When [URBAN] has been selected, the picture may appear in black and white as a screen effect.
- [AUTO] can be used only when [Category Selection] has been selected. The pictures are played back with the recommended effects in each category.
- During the [Motion Pic. Only] slide show, [Effect] is fixed to [OFF].
- Some [Effect] will not operate when playing back pictures displayed vertically.

[Setup]

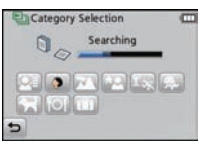
[Duration] or [Repeat] can be set.

Item	Settings	
[Duration]	[1 SEC.]/[2 SEC.]/[3 SEC.]/[5 SEC.]	
[Repeat]	[ON]/[OFF]	
[Sound]	[OFF]:	There will be no sound.
	[AUTO]:	Music is played when the still pictures are played back, and audio is played when the motion pictures are played back.
	[MUSIC]:	Music is played back.
	[AUDIO]:	Audio (only for motion pictures) is played back.

- [Duration] can be set only when [OFF] has been selected as the [Effect] setting.

[Filtering Play]

Pictures are classified into only still pictures, only motion pictures, or only 3D pictures etc., and played back.

Item	Settings
[Picture Only]	Only still pictures are played back.
[Video Only]	Only motion pictures are played back.
[3D Play]	Only 3D pictures are played back. • Refer to P148 for the method to playback [3D Play] pictures in 3D.
[Category Selection]	This mode allows you to search images by Scene Mode or other categories (such as [Portrait], [Scenery] or [Night Scenery]) and sort the pictures into each of the categories. You can then play back the pictures in each category. **Touch the category to play back.** • Only the category for which pictures have been found can be selected. 
[Favorite]	You can play back the pictures you have set as [Favorite] (P107).

■ About the categories to be sorted

It will be sorted as following when [Category Selection] is set.

	Recording information e.g. Scene Modes
	[Face Recog.]*
	[Portrait], [i-Portrait], [Night Portrait], [i-Night Portrait], [Cosmetic Mode], [Baby1]/[Baby2], [i-Baby], [Self Portrait], [Transform]
	[Scenery], [i-Scenery], [Sunset], [i-Sunset], [Aerial Photo]
	[Night Scenery], [i-Night Scenery], [Night Portrait], [i-Night Portrait], [Starry Sky], [Handheld Night Shot]
	[Sports], [Party], [Candle Light], [Fireworks], [Beach], [Snow], [Aerial Photo]
	[Baby1]/[Baby2], [i-Baby]
	[Pet]
	[Food]
	[Travel Date]

* Play back by selecting and touching the picture of the person you desire to play back.

[Playback Album]

Pictures registered to an album can be played back by the albums with [My Photo Album].
• For details on [My Photo Album], refer to P114.

[Calendar]

You can display pictures by recording date.

1 **Touch [▲]/[▼] to select the month to be played back.**

- If there were no pictures recorded during a month, that month is not displayed.
- Touch [ ] to display the multi playback screen.



2 **Select the date you wish to play back, and then touch [Set].**

3 **Touch the picture you wish to play back.**

- Touch [CAL] to return to the calendar search display screen.



Note

- The recording date of the picture selected in the playback screen becomes the date selected when the calendar screen is first displayed.
- If there are multiple pictures with the same recording date, the first picture recorded on that day is displayed.
- You can display the calendar between January 2000 and December 2099.
- If the date is not set in the camera, the recording date is set as January 1st, 2011.
- If you take pictures after setting the travel destination in [World Time], the pictures are displayed by the dates at the travel destination in Calendar Playback.

Using the [Playback] Mode Menu

This menu lets you perform editing like cropping recorded pictures, as well as set up protection of recorded pictures, etc.

- With [Text Stamp], [Resize] or [Cropping], a new edited picture is created. A new picture cannot be created if there is no free space on the built-in memory or the card so we recommend checking that there is free space and then editing the picture.

[Title Edit]

You can add text (comments) to pictures. After text has been registered, it can be stamped in prints using [Text Stamp] (P102).

1 **Select [ ]([Title Edit]) on the [Playback] Mode menu.** (P36)

2 **Touch [ ] ([Single]) or [ ] ([Multi]).**

3 **Select an image to add text to.**

- [ ] is displayed for pictures with titles already registered.

[Single] setting

1 **Drag the screen horizontally and select an image.**

2 **Touch [Set].**



[Multi] setting

1 **Touch a picture (repeat).**

- Selection will be canceled by touching the same picture again.

2 **Touch [OK].**



4 **Enter the text.** (P72)

- Exit the menu after it is set.

Note

- To delete the title, erase all the text in the text input screen.
- You can print out texts (comments) using the “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” bundled software on the CD-ROM (supplied).
- You can set up to 50 pictures at one time with [Multi].
- You cannot use [Title Edit] for the following types of pictures:
  – Motion pictures
  – Pictures recorded with other equipment

[Text Stamp]

You can stamp the recording date/time, name, location, travel date or title onto the recorded pictures.

1 **Select [ ]([Text Stamp]) on the [Playback] Mode menu.** (P36)

2 **Touch [ ] ([Single]) or [ ] ([Multi]).**

3 **Select an image you wish to stamp with text.**

- [ ] is displayed on pictures already with date or text stamped.

[Single] setting

1 **Drag the screen horizontally and select an image.**

2 **Touch [Set].**



[Multi] setting

1 **Touch a picture (repeat).**

- Selection will be canceled by touching the same picture again.

2 **Touch [OK].**



4 **Touch [Set].**

5 Select the item to stamp.

Item	Setting item	
[Shooting Date]	**[OFF]**	
	[W/O TIME]:	Stamp the year, month and date.
	[WITH TIME]:	Stamp the year, month, day, hour and minutes.
[Name]	**[OFF]**	
	[ ]:	Stamps names registered in name settings for [Face Recog.].
	[/]:	Stamps names registered in name settings for [Baby1]/[Baby2] or [Pet] in Scene Mode.
[Location]	**[OFF]**	
	[ON]:	Stamps the travel destination name set under [Location].
[Travel Date]	**[OFF]**	
	[ON]:	Stamps the travel date set under [Travel Date].
[Title]	**[OFF]**	
	[ON]:	Title input in the [Title Edit] will be stamped.

6 Touch [ ].

7 Touch [OK].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- When you print pictures stamped with text, the date will be printed over the stamped text if you specify printing of the date at the photo shop or on the printer.
- You can set up to 50 pictures at one time in [Multi].
- The picture quality may deteriorate when text stamping is carried out.
- Depending on the printer being used, some characters may be cut at printing. Check before printing.
- When text is stamped onto the images smaller than 0.3 M, it is difficult to read it.
- Text and dates cannot be stamped on the pictures in the following cases.
  – Motion pictures
  – Pictures recorded without setting the clock and title
  – Pictures with date or text stamped
  – Pictures recorded with other equipment

[Video Divide]

Recorded motion picture can be divided in two. It is recommended for when you want to divide a part you need with a part you do not need.
It cannot be restored once divided.

1 Select [ ]([Video Divide]) on the [Playback] Mode menu. (P36)

2 Drag the screen horizontally to select a motion picture to divide, and touch [Set].

3 Touch [ ] at the location to divide.

- Motion picture is played back from the same location when [ ] is touched again.
- Make fine adjustments to the division position by touching [ ]/ [ ] while the motion picture is paused.

4 Touch [ ].

- Confirmation screen is displayed. It is executed when [Yes] is selected.
  Exit the menu after it is executed.
- Motion picture may be lost if the card or battery is removed while processing the dividing.

Note

- [Video Divide] may not be performed on motion pictures recorded with other equipment.
- Motion pictures cannot be divided at a location close to the start or end of the motion picture.
- With [MP4] motion pictures, the order of pictures will change if divided.
  It is recommended to search these motion pictures by using [Calendar] or [Video Only] in the [Filtering Play].
- Motion pictures with a short recording time cannot be divided.

[Resize]

To allow easy posting to web pages, attachment to e-mail etc., picture size (number of pixels) is reduced.

1 Select [ ] ([Resize]) on the [Playback] Mode menu. (P36)

2 Touch [ ] ([Single]) or [ ] ([Multi]).

3 Select the picture and size.

[Single] setting

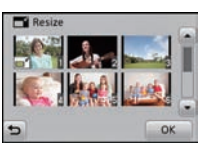


1 Drag the screen horizontally to select an image, and then touch [Set].

2 Touch the size you wish to change, and then touch [Set].

- Confirmation screen is displayed. It is executed when [Yes] is selected.
  Exit the menu after it is executed.

[Multi] setting



1 Touch the size you wish to change.

2 Touch a picture (repeat).

- Selection will be canceled by touching the same picture again.

3 Touch [OK].

- Confirmation screen is displayed. It is executed when [Yes] is selected.
  Exit the menu after it is executed.

Note

- You can set up to 50 pictures at one time in [Multi].
- The picture quality of the resized picture will deteriorate.
- It may not be possible to resize pictures recorded with other equipment.
- Motion pictures or still pictures with date or text stamped cannot be resized.

[Cropping]

You can enlarge and then crop the important part of the recorded picture.

1 Select [✂] ([Cropping]) on the [Playback] Mode menu. (P36)

2 Drag the screen horizontally to select an image, and then touch [Set].

3 Select the parts to be cropped.

Touch [🔍+]: Enlarge
Touch [🔍−]: Reduce
Drag: Move

4 Touch [Set].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- The picture quality of the cropped picture will deteriorate.
- It may not be possible to crop pictures recorded with other equipment.
- Motion pictures or still pictures with date or text stamped cannot be cropped.
- Information regarding the Face Recognition in the original picture will not be copied to images having undergone [Cropping].

[Favorite]

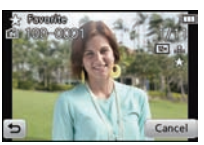
You can do the following if a mark has been added to pictures and they have been set as favorites.
• Play back only the pictures set as favorites. ([Favorite] in [Filtering Play])
• Play back the pictures set as favorites only as a slide show.
• Delete all the pictures not set as favorites. ([All Delete Except★])

1 Select [★] ([Favorite]) on the [Playback] Mode menu. (P36)

2 Touch [★S] ([Single]) or [★M] ([Multi]).

3 Select the picture.

[Single] setting
Drag the screen horizontally to select an image, and then touch [Set].
• Setting is canceled by touching [Cancel].
• Exit the menu after it is set.



[Multi] setting
Touch the pictures you wish to set as favorites.
• Setting is canceled by touching the same picture again.
• Exit the menu after it is set.



■ Canceling all the [Favorite] settings

1 Select [Favorite] on the [Playback] Mode menu.
2 Touch [CANCEL★] ([Cancel]).
• Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note
• You can set up to 999 pictures as favorites.
• You may not be able to set pictures taken with other equipment as favorites.

[Print Set]

DPOF “Digital Print Order Format” is a system that allows the user to select which pictures to print, how many copies of each picture to print and whether or not to print the recording date on the pictures when using a DPOF compatible photo printer or photo printing store. For details, ask at your photo printing store.
When you want to use a photo printing store to print pictures recorded on the built-in memory, copy them to a card (P112) and then set the print setting.
For more information visit:
http://panasonic.jp/dc/dpof_110/white_e.htm

1 Select [ ] ([Print Set]) on the [Playback] Mode menu. (P36)

2 Touch [ ] ([Single]) or [ ] ([Multi]).

3 Select the picture.

[Single] setting
Drag the screen horizontally to select an image, and then touch [Set].



[Multi] setting
Touch the picture you wish to print.



4 Touch [▲]/[▼] to set the number of prints, and then touch [Set] to set.

- When [Multi] has been selected, repeat steps **3** and **4** for each picture. (It is not possible to use the same setting for a multiple number of pictures.)
- Exit the menu after it is set.

■ **Canceling all the [Print Set] settings**

1 Select [Print Set] on the [Playback] Mode menu.

2 Touch [CANCEL] ([Cancel]).

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

■ **To print the date**

After setting the number of prints, set/cancel printing with the recording date by touching [Date].

- Depending on the photo printing store or the printer, the date may not be printed even if you set to print the date. For further information, ask at your photo printing store or refer to the operating instructions for the printer.
- The date cannot be printed on pictures with date or text stamped.

Note

- The number of prints can be set from 0 to 999.
- Depending on the printer, the date print settings of the printer may take precedence so check if this is the case.
- It may not be possible to use the print settings with other equipment. In this case, cancel all the settings, and reset the settings.
- [Print Set] cannot be set for motion pictures.
- If the file is not based on the DCF standard, the print setting cannot be set.

[Protect]

You can set protection for pictures you do not want to be deleted by mistake.

1 Select [ ]([Protect]) on the [Playback] Mode menu. (P36)

2 Touch [ ] ([Single]) or [ ] ([Multi]).

3 Select the picture.

[Single] setting
Drag the screen horizontally to select an image, and then touch [Set].



- Setting is canceled by touching [Cancel].
- Exit the menu after it is set.

[Multi] setting
Touch the picture you wish to protect.



- Setting is canceled by touching the same picture again.
- Exit the menu after it is set.

■ Canceling all the [Protect] settings

1 Select [Protect] on the [Playback] Mode menu.

2 Touch [ ] ([Cancel]).

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- The protect setting may not be effective on other equipment.
- Even if you protect pictures in the built-in memory or a card, they will be deleted if the built-in memory or the card is formatted.
- Even if you do not protect pictures on a card, they cannot be deleted when the card's Write-Protect switch is set to [LOCK].

[Face Rec Edit]

You can delete or change the information relating to Face Recognition for the selected picture.

1 Select [ ]([Face Rec Edit]) on the [Playback] Mode menu. (P36)

2 Touch [REPLACE] ([Replace]) or [DELETE] ([Cancel]).

3 Drag the screen horizontally to select an image, and then touch [Set].

4 Touch the name of the person you wish to edit.

5 (When [Replace] is selected) Touch the person to replace.

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- Cleared information regarding the [Face Recog.] cannot be restored.
- When all Face Recognition information in a picture has been canceled, the picture will not be categorised using Face Recognition in [Category Selection] in [Filtering Play].
- You cannot edit the Face Recognition information of protected pictures.

[Copy]

You can copy data of pictures you have taken from the built-in memory onto a card or from a card into the built-in memory.

1 Select [ ]([Copy]) on the [Playback] Mode menu. (P36)

2 Touch the copy destination.

: All the picture data in the built-in memory are copied onto the card at one time.

: One picture at a time is copied from the card to the built-in memory.
Drag the screen horizontally to select an image, and then touch [Set].

- Confirmation screen is displayed. It is executed when [Yes] is selected.
  Exit the menu after it is executed.
- Do not turn the camera off at any point during the copying process.

Note

- If a picture exists with the same name (folder number/file number) as the picture to be copied in the copy destination when [ ] is selected, a new folder is created and the picture is copied.

  If a picture exists with the same name (folder number/file number) as the picture to be copied in the copy destination when [ ] is selected, that picture is not copied.

- It may take time to copy the picture data.
- [Print Set], [Protect] or [Favorite] settings will not be copied. Perform the settings again after copying is finished.
- Motion picture recorded in [AVCHD] cannot be copied.

Having Fun with Recorded Pictures

Pictures can be saved to an album, and recorded pictures can be edited with ease.
Pictures can be saved in different groups within an album, which makes it easier to playback the picture you want.
Stamps can be applied to pictures, and decorations or makeup effects applied to brighten up people's faces or expressions, which makes it easy to keep your favorite pictures in stunning quality.

- A new copy of pictures saved in albums or that have been edited will be created, so check that there is sufficient space on the built-in memory or card.

1 **Touch [ ] on the playback screen.**



2 **Touch the icon.**

Item	Description of settings
[My Photo Album] (P114)	Pictures you want to keep can be registered in specific albums.
[Beauty Retouch] (P115)	You can change the impression made by faces by adjusting the clearness and shine of the skin using [Aesthetic Retouch] and adjusting lip color and skin tone using [Make Up Retouch].
[Art Retouch] (P117)	You can modify the saturation or brightness of the picture.
[Image Stamp] (P118)	Apply your favorite stamps to recorded pictures, including hearts and stars.

[My Photo Album]

Pictures can be copied into specific albums and you can selectively retrieve your favorite ones. Registering pictures contained in the card by album allows the following.
- Playing back only the pictures registered in albums. ([Playback Album])
- Playing back the pictures registered in albums only as a slide show.

1 Touch a picture to register.
(repeat this step)
- Touch the same picture again to cancel the selection.

2 Touch the picture you selected in step 1 until the selection frame reappears and drag it to the album where you want to register it.



- Three types of albums [MY1]/[MY2]/[MY3] are available for registration.
- Up to 999 pictures can be registered in a single album.

Note
- Pictures in the built-in memory cannot be registered in albums. Register them after copying them to cards.
- To cancel the picture registered with [My Photo Album], delete it from [Playback Album]. (Original picture will not be deleted.)
- Motion pictures cannot be registered in albums.
- Pictures recorded with other equipment may not be registered in albums.

[Beauty Retouch]

1 Drag the screen horizontally to select an picture, and then touch [OK].

2 Touch the face of the person to edit.

- Only a person with an arrow can be selected.

3 Select [ ] or [ ], and touch an item.



- Touch [▲]/[▼] to arrange settings of your choice.
- To continue to add effects, repeat these steps.
- Touch [OK] when picture editing has finished. Images before application and after application are displayed.

[ ] ([Aesthetic Retouch])
(For each of the following items, any of 5 levels of effect can be selected)

Item	Description of settings
[ ] ([Clear Skin])	Reduces blemishes and dullness in the skin while bringing out clearness.
[ ] ([Shine Removal])	Shiny areas of the skin are matted down.
[ ] ([Whitening])	Eyes and teeth are whitened and beautified.
[ ] ([Lift Up])	Face lines are sharpened.
[ ] ([Eye Emphasis])	Eyes look bigger and defined.

[ ] ([Make Up Retouch])
(For each of the following items, any of 5 color effects can be selected)

Item	Description of settings
[ ] ([Foundation])	Color of the skin is adjusted.
[ ] ([Lip Color])	Color of the lips is adjusted to highlight the texture.
[ ] ([Cheek Color])	Outline can be selected from 3 options to produce a 3D appearance.
[ ] ([Eye Shadow])	Shape of the eye is defined.

4 Touch [OK].

- You can go ahead and edit another person.
  Repeat steps **2** and **3**.
- People already edited cannot be edited again. If you want to edit again, save the picture once and go back to select the person again.

5 Touch [Save].

- Confirmation screen is displayed. It is executed when [Yes] is selected.

Note

- The brightness and color of pictures you are checking before saving may differ to the actual picture that is saved.
- [Beauty Retouch] is not available in 3D pictures or motion pictures.
- [Beauty Retouch] may not be performed on pictures recorded with other equipment.
- Intended retouching may not be possible when the face detection is not performed properly.
- To take pictures appropriate for [Beauty Retouch]:
  – Take pictures of the face from the front
  – Avoid taking pictures in a very dark place
  – Clearly record the part you intend to retouch
- Reallusion is a trademark of Reallusion Inc.

[Art Retouch]

1 **Drag the screen horizontally to select an picture, and then touch [OK].**

2 **Touch the item.**

Item	Description of settings
[ ] ([Saturation])	Saturation can be changed in ±6 steps.
[ ] ([Brightness])	Brightness can be changed in ±6 steps.

3 **Drag the slide bar to set the effects.**



4 **Touch [OK].**

- Confirmation screen is displayed. It is executed when [Yes] is selected.

Note

- [Art Retouch] is not available in 3D pictures or motion pictures.
- [Art Retouch] may not be performed on pictures recorded with other equipment.

[Image Stamp]

1 Drag the screen horizontally to select an picture, and then touch [OK].

2 Touch the position you wish to stamp.

- Up to 10 stamps can be applied at once.



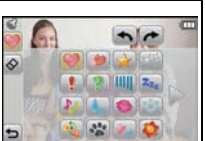
3 After finishing the picture editing, touch [OK].

4 Touch [OK].

- Confirmation screen is displayed. It is executed when [Yes] is selected.
- The picture size is fixed to 5M (4:3), 4.5M (3:2), 3.5M (16:9) or 3.5M (1:1).

■ Changing or removing stamps

Touch the icon below to change or remove a stamp.

Item	Description of settings
[♥] ([Image Stamp])	**Touch the icon of the stamp you wish to use.** • You can select from 32 different stamps. • The display of [♥] will change to the selected stamp. • The icon can be rotated by touching [↩]/[↪]. • The page can be changed by touching [◁]/[▷]. 
[◇] ([Delete Stamps])	**Touch the stamp you wish to delete on the screen.**
[↻]	• This undoes the directly preceding operation.

Note

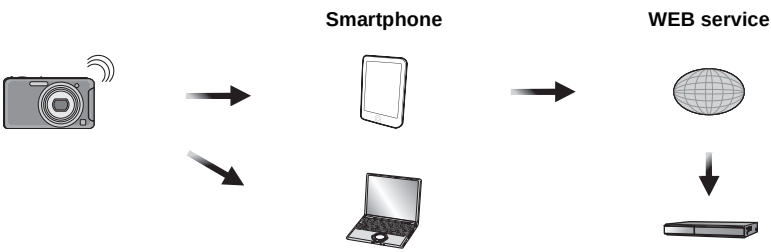
- [Image Stamp] is not available in 3D pictures or motion pictures.
- When applying a stamp to a picture that is smaller than 3M in size, the picture quality may become deteriorated.
- When you stamp a picture that was recorded vertically, the picture will be displayed horizontally.

What you can do with the Wi-Fi® function

Use the Wi-Fi function of this camera for wireless LAN communications for the following.

Connect to your smartphone or PC and send images

From this camera	and...
Send images to your smartphone or PC and view them	**Instantly send recorded pictures to the WEB service or AV device via your smartphone, and share pictures with friends.**



- When sending images to equipment other than smartphones, the connection with the wireless access point (broadband router)* takes priority. (P122)

* Name will differ depending on the manufacturer.

Send images to your smartphone

Required steps

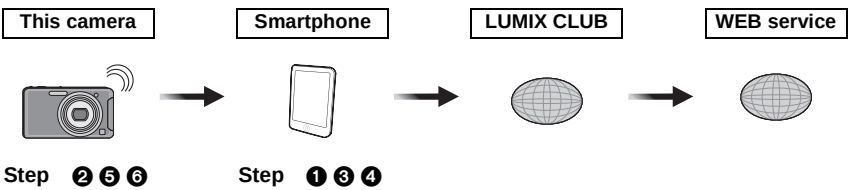
This camera	Smartphone
Step ❷❺❻	Step ❶❸❹

❶ Download “LUMIX LINK” to your smartphone. (P127)
❷ Display the SSID and encryption key of this camera. (P132)
❸ Set the Wi-Fi function ON in your smartphone and enter the encryption key for this camera.
❹ Launch “LUMIX LINK” on your smartphone.
❺ Select images to send. (P141, 142)
❻ Set your smartphone as the destination, and send the images. (P143)

Send images to WEB service

Preparation:
Acquire the "LUMIX CLUB" login ID*1. (P134)
Log into "LUMIX CLUB" and register the WEB service to send images to. (P140)
*1 A wireless access point (broadband router) that is connected to the internet is required to acquire a Login ID.

Required steps

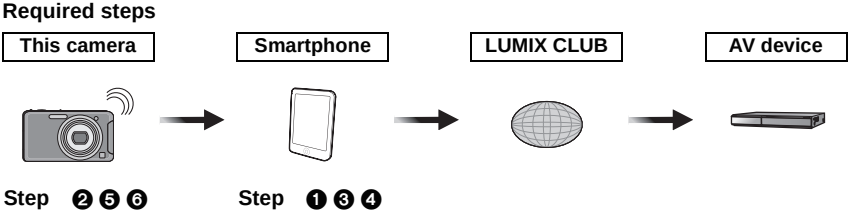


❶ Download "LUMIX LINK" to your smartphone. (P127)
❷ Display the SSID and encryption key of this camera. (P132)
❸ Set the Wi-Fi function ON in your smartphone and enter the encryption key for this camera.
❹ Launch "LUMIX LINK" on your smartphone.
❺ Select images to send. (P141, 142)
❻ Set the WEB service as the destination, and send the images. (P143)

Send images to AV device

Preparation:
Acquire the "LUMIX CLUB" login ID*2. (P134)
Log into "LUMIX CLUB" and register the AV equipment to send pictures to. (P136)
*2 A wireless access point (broadband router) that is connected to the internet is required to acquire a Login ID.

Required steps



❶ Download "LUMIX LINK" to your smartphone. (P127)
❷ Display the SSID and encryption key of this camera. (P132)
❸ Set the Wi-Fi function ON in your smartphone and enter the encryption key for this camera.
❹ Launch "LUMIX LINK" on your smartphone.
❺ Select images to send. (P141, 142)
❻ Set the AV device as the destination, and send the images. (P143)

Send images to your PC

Required steps

This camera		PC
	→	
Step ❷❹❺		Step ❶❸

❶ Install “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” on your PC.
- Refer to the separate “Basic Owner’s Manual” for further information on operating environments or installation.

❷ Display the SSID and encryption key of this camera. (P132)

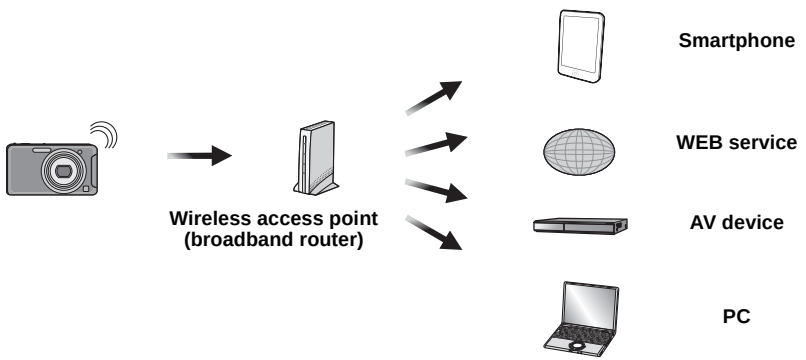
❸ Enter the encryption key of this camera into your PC.

❹ Select images to send. (P141, 142)

❺ Set the PC as the destination, and send the images. (P143)

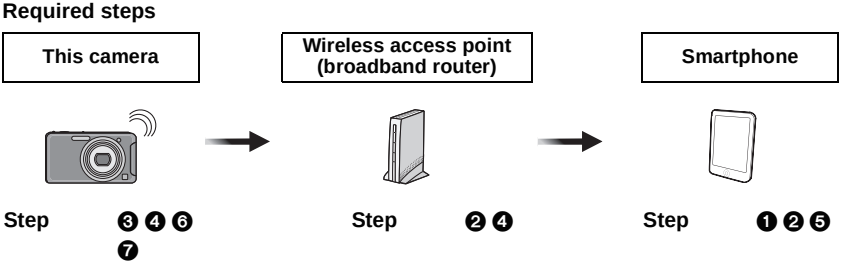
Connect to the wireless access point (broadband router) and send the images

With this camera	and...
Use the Wi-Fi function to connect to the wireless access point (broadband router).	**Instantly send recorded images to your smartphone, the WEB service or AV device via the wireless access point (broadband router), and share images with friends.**



Send pictures to smartphone

Required steps

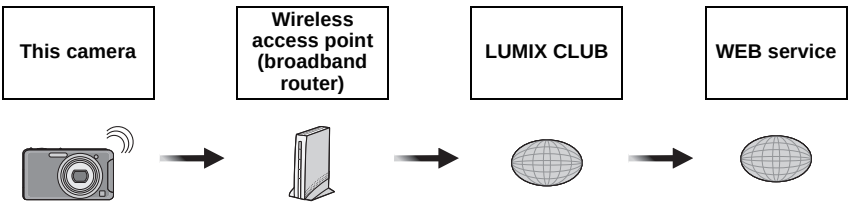


❶ Download “LUMIX LINK” to your smartphone. (P127)
❷ Connect your smartphone to the wireless access point (broadband router).
- Refer to the operating instructions of your smartphone for more information on the connection method.

❸ Set [Connection Mode] in the [Smartphone connection] to [Auto] (P132).
❹ Connect this camera to the wireless access point (broadband router). (P128)
❺ Launch “LUMIX LINK” on your smartphone.
❻ Select images to send. (P141, 142)
❼ Set your smartphone as the destination, and send the images. (P143)

Send images to WEB service

Required steps

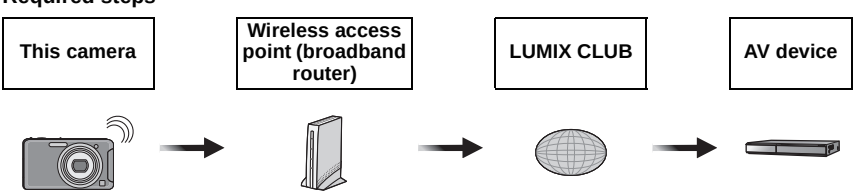


Step ❶❷❹❺ **Step ❶** **Step ❸**

❶ Connect this camera to the wireless access point (broadband router). (P128)
❷ Acquire the “LUMIX CLUB” login ID. (P134)
❸ Register the WEB service used to send images with “LUMIX CLUB”. (P140)
❹ Select images to send. (P141, 142)
❺ Set the WEB service as the destination, and send the images. (P143)

Send images to external AV device

Required steps

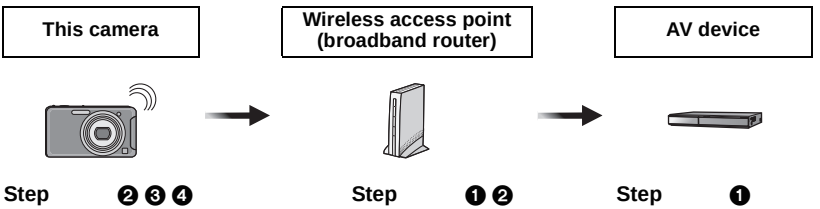


Step ❶❷❸❹❺ **Step ❶**

❶ Connect this camera to the wireless access point (broadband router). (P128)
❷ Acquire the “LUMIX CLUB” login ID. (P134)
❸ Register the AV device as the destination. (P136)
❹ Select images to send. (P141, 142)
❺ Set the external AV device as the destination, and send the images. (P143)

Send images to home AV device

Required steps



❶ Connect AV device to the wireless access point (broadband router).
- Refer to the operating instructions of the AV device for more information on the connection method.

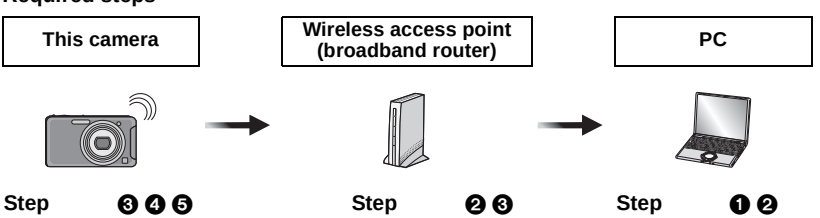
❷ Connect this camera to the wireless access point (broadband router). (P128)

❸ Select images to send. (P141, 142)

❹ Set the home AV device as the destination, and send the images. (P143)

Send images to your PC

Required steps



❶ Install “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” on your PC.
- Refer to the separate “Basic Owner’s Manual” for further information on operating environments or installation.

❷ Connect the PC to the wireless access point (broadband router).
- Refer to the operating instructions of the wireless access point (broadband router) for more information on the connection method.

❸ Connect this camera to the wireless access point (broadband router). (P128)

❹ Select images to send. (P141, 142)

❺ Set the PC as the destination, and send the images. (P143)

Wi-Fi function

■ Use the camera as a wireless LAN device

When using equipment or computer systems that require more reliable security than wireless LAN devices, ensure that the appropriate measures are taken for safety designs and defects for the systems used. Panasonic will not take any responsibility for any damage that arises when using the camera for any purpose other than as a wireless LAN device.

■ Use of the Wi-Fi function is presumed to be in the United States

Use of the Wi-Fi function of this camera is presumed to be in the United States. There is the risk that the camera violates the radio wave regulations if used in countries other than the United States, and Panasonic takes no responsibility for any violations.

■ There is the risk that data sent and received via radio waves may be intercepted

Please note that there is the risk that data sent and received via radio waves may be intercepted by a third party.

■ Do not use the camera in areas with magnetic fields, static electricity or interference

- Do not use the camera in areas with magnetic fields, static electricity or interference, such as near microwave ovens. Radio waves may not reach the camera.
- Using the camera near devices that use the 2.4 GHz radio wave band may cause a decrease in performance in both devices.

■ Do not connect to wireless networks with unrestricted access

When the camera utilises its Wi-Fi function, wireless networks will be searched automatically. When this happens, wireless networks that you are not authorised to use (SSID*) may be displayed, however do not attempt to connect to the network as it may be considered as unauthorised access.

* SSID refers to the name that is used to identify a network over a wireless LAN connection. If the SSID matches for both devices, transmission is possible.

Note

- The camera cannot be used to connect to a public wireless LAN connection.
- A wireless access point (broadband router) is required to connected from home.
- Use a IEEE802.11b, IEEE802.11g or IEEE802.11n compatible device when using a wireless access point.
- When using a wireless access point (broadband router), we strongly recommend that you set a encryption to maintain information security.
- The Wi-Fi transmitter may become warm when using the Wi-Fi function; however this is not a sign of a malfunction.
- When sending images with the Wi-Fi function, do not cover the Wi-Fi transmitter with your hand. The camera may have difficulty sending images.

Connect with [Easy Setup]

1 **Touch [MENU] on the playback screen.**

2 **Touch [ ] ([Wi-Fi Setup]).**

3 **Touch [Easy Setup].**



4 **Touch the destination icon for the image again.**

- When selecting [AV device], touch [Home] or [External].
- Follow the on-screen instructions and make the settings.
- Proceed to the next page by touching [Next].
- Close the menu after changing settings.

Destination	Description of settings
[ ] ([Smartphone])	**1 Download the smartphone app "LUMIX LINK" for the smartphone and install it.** **2 In the smartphone Wi-Fi settings, change the connection access point to the camera and enter the encryption key displayed on the camera.** • A message is displayed when the connection is complete. Touch [OK] twice. • Connection is fixed to wireless AP mode. To cancel this, set [Connection Mode] in [Smartphone connection] to [Auto]. (P132) • Refer to the smartphone instruction manual for further information on how to use the smartphone. • Set the Wi-Fi function ON in the smartphone Wi-Fi settings.
[ ] ([WEB Service])	**1 Touch connection method to wireless access point (broadband router).** • Refer to "[Wireless settings]" (P128) for the connection method. **2 After saving the wireless access point (broadband router), acquire a "LUMIX CLUB" login ID.** • Refer to "[LUMIX CLUB]" (P134) for acquiring a login ID. • A message is displayed when the connection is complete. Touch [OK].
[ ] ([External] in [AV device])	
[ ] ([Home] in [AV device])	**Touch connection method to wireless access point (broadband router).** • Refer to "[Wireless settings]" (P128) for the connection method. • A message is displayed when the connection is complete. Touch [OK].
[PC] ([PC])	

■ About the “LUMIX LINK”



The smartphone application “LUMIX LINK” is required to connect your smartphone to this camera.
Download the application using the method below.

For Android ™:

1 Connect your Android device to a network.
2 Select “Android Market”.
3 Enter “LUMIX LINK” into the search box.
4 Select “LUMIX LINK” and install it.

- The [ ] icon will be added to the menu.

For iPhone®:

1 Connect the iPhone to the network.
2 Select “App Store”.
3 Enter “LUMIX LINK” into the search box.
4 Select “LUMIX LINK” and install it.

- The [ ] icon will be added to the menu.

Compatible OSes (current as of August 2011).
For Android ™:
Android2.1, Android2.2, Android2.3

For iPhone ®:
iOS3, iOS4

“LUMIX LINK” can be used for the following.
- Save images sent from this camera on your smartphone.
- Send images saved on your smartphone to the WEB service or AV device.
- Forward images sent from this camera to the WEB service or AV device.

Note
- The service may not be able to be used properly depending on the type of smartphone being used. For compatible devices, see the following support site.
  http://panasonic.jp/support/global/cs/dsc/ (This Site is English only.)
- When downloading the app on a mobile network, high packet communication fees may be incurred depending on the details of your contract.

How to Use the [Manual Setup] Menu

[Wireless settings]

Set the SSID and authentication type for the wireless access point (broadband router) you are connecting to manually before connecting.

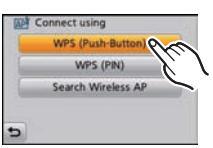
Preparation:
Check the “SSID”, “Encryption Type” and “Encryption Key” for the wireless access point (broadband router) you are using.

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. (P36)

2 Touch [AP] ([Wireless settings]).

3 Touch [Add].

4 Touch connection method.



Connection method	Description of settings
[WPS (Push-Button)]	Save push button type wireless access point (broadband router) that is compatible with Wi-Fi Protected Setup™ with a WPS mark. • Access points can be saved during playback by pressing and holding down the [Wi-Fi] button on the camera for at least 3 seconds. Follow the on-screen instructions and make the settings.
[WPS (PIN)]	Save PIN code type wireless access point (broadband router) that is compatible with Wi-Fi Protected Setup with a WPS mark.
[Search Wireless AP]	Search for a wireless access point (broadband router) that can be used.

When connecting with [WPS (Push-Button)]

Press the wireless access point (broadband router) WPS button until it switches to WPS mode.

- A message is displayed when the wireless access point (broadband router) has been saved.
- Refer to the wireless access point (broadband router) instruction manual for details.

When connecting with [WPS (PIN)]

1 **Touch the wireless access point (broadband router) you are connecting to.**

2 **Enter the PIN code displayed on the camera screen into the wireless access point (broadband router).**

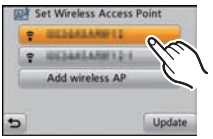
3 **Touch [Next].**

- A message is displayed when the wireless access point (broadband router) has been saved.
- Refer to the wireless access point (broadband router) instruction manual for details.

When connecting with [Search Wireless AP]

1 Touch the wireless access point (broadband router) you are connecting to.

- Touching [Update] will search for a wireless access point (broadband router) again.



2 (If network authentication is encrypted) Enter the encryption key and touch [Set].

- A message is displayed when the wireless access point (broadband router) has been saved.



■ Connect with [Add wireless AP]

Connect with [Add wireless AP] if the wireless access point (broadband router) you want to connect to is not displayed in the list in the screen of step **1** of “When connecting with [Search Wireless AP]”.

1 Touch [Add wireless AP] in the screen for step 1 of “When connecting with [Search Wireless AP]”.

2 Enter the SSID of the wireless access point (broadband router) you are connecting to and touch [Set].

- For details on how to enter characters, refer to “Entering Text” section on P72.

3 Touch network authentication type.

- For information on network authentication, see the manual of the wireless access point (broadband router).

4 Touch encryption type.

- The type of settings that can be changed may vary depending on the details of network authentication settings.

Network authentication type	Encryption types that can be set
[WPA2-PSK]/[WPA-PSK]	[TKIP]/[AES]
[Common Key]	[WEP]
[Open]	[No Encryption]*/[WEP]

*A message is displayed when the access point has been saved.

5 (When an option other than [No Encryption] is selected) Enter the encryption key and touch the [Set].

- A message is displayed when the wireless access point (broadband router) has been saved.

■ Set the first wireless access point (broadband router) to connect to

When several wireless access points (broadband router) are saved, changing settings so the wireless access point (broadband router) that is used most often is connected first adds convenience.

• If the set wireless access point (broadband router) cannot be found, connections will be made in the order displayed on the screen.

1 Select [Manual Setup] in the [Wi-Fi Setup] menu.
2 Touch [Wireless settings].
3 Touch [Set default].
4 Touch the wireless access point (broadband router) you want to set.

• Close the menu after changing settings.



■ Delete a saved wireless access point (broadband router)

1 Select [Manual Setup] in the [Wi-Fi Setup] menu.
2 Touch [Wireless settings].
3 Touch [Delete].
4 Touch the wireless access point (broadband router) you want to delete.

• Confirmation screen is displayed. It is executed when [Yes] is selected.
Exit the menu after it is executed.



Note

• Up to 8 wireless access points (broadband router) can be saved.
• Check the wireless access points (broadband router) instruction manual and settings when a saving wireless access point (broadband router).
• If no connection can be established, the wireless access point's (broadband router) radio waves may be too weak. Refer to “Message Display” (P169) and “Troubleshooting” (P172) for details.
• Transmission speed may decrease, or may not be usable depending on the environment it is used in.

[Smartphone connection]

Change settings to connect to your smartphone.

1 **Select [Manual Setup] in the [Wi-Fi Setup] menu.** (P36)

2 **Touch [ ] ([Smartphone connection]).**

3 **Touch settings.**

<table>
<tr><th>Send method</th><th colspan="2">Setting Details</th></tr>
<tr><td>[Wireless AP Info]</td><td colspan="2">The camera displays the connection information (SSID, encryption key) required to use the wireless access point. Connect directly to the destination equipment without connecting to the wireless access point (broadband router). (Wireless AP mode)
Enter the encryption key of this camera into the equipment to be connected.
• A message is displayed when the connection is complete. Touch [OK].
 
</td></tr>
<tr><td rowspan="3">[Connection Mode]</td><td colspan="2">Select whether to connect to the destination equipment via the wireless access point (broadband router) or to connect directly to the destination equipment.
• Change the connection settings of the destination equipment in advance.</td></tr>
<tr><td>[Auto]</td><td>Search for a wireless access point (broadband router) that can be connected. If a wireless access point (broadband router) that can be connected cannot be found, the equipment will automatically switch to wireless AP mode.</td></tr>
<tr><td>[Fixed(Wireless AP mode)]</td><td>Connect to the destination equipment with wireless AP mode fixed.
• The equipment is fixed to Wireless AP mode only when the destination is set as a [Smartphone].</td></tr>
</table>

[Upload Size]

If the picture size is too big, sending the picture may take too long, so make the picture smaller before sending it.
The picture size can be set for each destination.

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. (P36)

2 Touch [ ] ([Upload Size]).

3 Touch destination.

4 Touch the size you want to change.

- [Original] sends the picture in the size it was recorded at without resizing.
- [Recommend] can only be set when selecting [WEB Service]. Acquire information from the “LUMIX CLUB” and resize the picture to an appropriate size to be uploaded to the WEB service.
- Exit the menu after it is executed.

Note

- The send time is affected by the strength of the radio waves. The send time may be slower due to encryption settings.
- A 2M to 3M size is usually recommended.
- The picture size saved with the WEB service may not match the picture size settings for sending pictures.
- Resizing and uploading pictures will not change the original size of the picture saved on the camera or card.

[LUMIX CLUB]

Acquire a “LUMIX CLUB” login ID (free).
Use the “LUMIX CLUB” when uploading pictures to WEB services or external AV device.
– Refer to the “LUMIX CLUB” site for details.
http://lumixclub.panasonic.net/eng/c/

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. (P36)

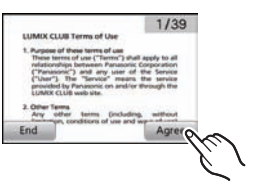
2 Touch [ ] ([LUMIX CLUB]).

3 Touch [New account].



- Connects to the network. Proceed to the next page by touching [Next].
- A confirmation screen will be displayed if a login ID has already been acquired for the camera. Select [Yes] to acquire a new login ID, or [No] if you do not need to acquire a new login ID.

4 Read through the “LUMIX CLUB” terms of use and touch [Agree].



- The page can be switched by dragging the screen in a horizontal direction.
- Firmly touching the area to zoom in on can enlarge the view (2x zoom).
- Return to the original size by touching [ ].
- Touching [End] will cancel the process without acquiring a login ID.

5 Enter a password and touch [Set].

- Enter any combination of 8 to 16 characters and numbers for the password.
- For details on how to enter characters, refer to “Entering Text” section on P72.

6 Check the login ID and touch [OK].



- A message is displayed when the connection is complete. Touch [OK].
- The login ID (12-digit number) will be displayed automatically. When logging in to the “LUMIX CLUB” with a computer, you only need to enter the numbers.
- The login ID and password are required when you want to reset the camera. Always make a copy of this information.

■ **Check or change the acquired login ID/password**

1 **Select [Manual Setup] in the [Wi-Fi Setup] menu.** **(P36)**

2 **Touch [LUMIX CLUB].**

3 **Touch [Display account] to display the login ID and password.**

- The password is displayed as "✱".
- Close the menu if only checking the login ID.



4 **Touch the login ID or password you want to change.**

- The confirmation screen is displayed when changing the login ID. Touch [Yes].

5 **Enter the login ID or password, and touch [Set].**

- Refer to "Entering Text" (P72) for information on how to enter text.
- Close the menu after changing settings.

■ **Check the "LUMIX CLUB" terms of use**

Check the details if the terms of use have been updated.

1 **Select [Manual Setup] in the [Wi-Fi Setup] menu.** **(P36)**

2 **Touch [LUMIX CLUB].**

3 **Touch [Terms of use].**

- The camera will connect to the network and the terms of use will be displayed. Close the menu after checking the terms of use.

■ **Delete your login ID and unsubscribe from the "LUMIX CLUB"**

Delete the login ID from the camera when transferring it to another party or disposing of it. Also remember to unsubscribe from the "LUMIX CLUB".

1 **Select [Manual Setup] in the [Wi-Fi Setup] menu.** **(P36)**

2 **Touch [LUMIX CLUB].**

3 **Touch [Delete account].**

- The message is displayed. Touch [Next].

4 **Touch [Yes] in the login ID delete confirmation screen.**

- The message is displayed. Touch [Next].

5 **Touch [Yes] in the unsubscribe "LUMIX CLUB" confirmation screen.**

- If you want to continue using the service, selecting [No] will only delete the login ID. Exit the menu after it is executed.

6 **Touch [Next].**

- The login ID will be deleted and an unsubscribe complete message will be displayed. Touch [OK]. Exit the menu after it is executed.

Note

- Changes and other actions to login IDs can only be made to the login ID acquired with the camera.

[External AV device]

Images can be sent to the AV device of relatives and acquaintances via “LUMIX CLUB”.
• See the following site for AV device that is compatible with “LUMIX CLUB”.
(no compatible equipment as of August 2011.)
http://panasonic.jp/support/global/cs/dsc/ (This Site is English only.)

Preparation:

Check the address number (16-digit number) and access number (4-digit number) of the destination AV device issued by “LUMIX CLUB”.
(Refer to the AV equipment instruction manual for details)

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. **(P36)**

2 Touch [ ] ([External AV device]).

3 Touch [Add new device].

4 Enter the address number and touch [Set].
• For details on how to enter characters, refer to “Entering Text” section on P72.

5 Enter the access number and touch [Set].

6 Enter any name and touch [Set].
• Close the menu after changing settings.

Change or delete information on registered AV device.

Information on AV device that has already been saved can be changed or deleted.

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. **(P36)**
2 Touch [External AV device].
3 Touch the AV device you want to change or delete.
4 Touch [Edit] or [Delete].

Item	Description of settings
[Edit]	Change information on AV device that has already been registered. **Perform steps 4 through 6 in [External AV device]** **(P136)****.**
[Delete]	Delete information on AV device that has already been registered. Confirmation screen is displayed. It is executed when [Yes] is selected.

• Exit the menu after it is executed.

[Wi-Fi Password]

To prevent incorrect operation or use of the Wi-Fi function by a third party and to protect saved personal information, it is recommended that you protect the Wi-Fi function with a password.
Setting a password will automatically display the password input screen when the Wi-Fi function is used.

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. **(P36)**

2 Touch [ ] ([Wi-Fi Password]).

3 Touch [Setup].

4 Enter a password and touch [Set].

- Enter any 4-digit numbers as the password.
- For details on how to enter characters, refer to “Entering Text” section on P72.

5 Enter the password entered in step 4 again and touch [Set].

- Close the menu after changing settings.

■ Cancel the Wi-Fi password

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. **(P36)**
2 Touch [Wi-Fi Password].
3 Touch [Delete].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- Make a copy of password. If you forget the password, you can reset it with [Reset Wi-Fi Settings] in the [Wi-Fi Setup] menu, however other settings will also be reset.
- The password entered when using the Wi-Fi function will be active until the power switch is turned [OFF]. (You will have to enter the password again after canceling sleep mode)

[MAC Address]

Displays the MAC address set for the camera.
A “MAC Address” is a unique address that is used to identify network equipment.

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. (P36)

2 Touch [MAC] ([MAC Address]).

• The MAC address of the camera is displayed. Close the menu after checking the address.

[Reset Wi-Fi Settings]

• For details, refer to P45.
• The “LUMIX CLUB” login ID is separate to [Reset Wi-Fi Settings] in the Setup Menu, and cannot be deleted. Instead, delete it with [Delete account] in [LUMIX CLUB]. (P135)

[Approved Regulations]

The technical compliance standard authentication number is displayed.

1 Select [Manual Setup] in the [Wi-Fi Setup] menu. (P36)

2 Touch [i] ([Approved Regulations]).

• The authentication information of the camera is displayed. Close the menu after checking the address.

Send image

Preparation before sending images

When sending images to [WEB Service]
• Perform “Using WEB services.” (P140) to save the WEB service being used.



When you want to send pictures to your smartphone or use your [Smartphone] to send pictures
• Launch the smartphone app “LUMIX LINK”.



When sending images to a [PC]
• Turn the computer power ON.
• Install “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” on the CD-ROM (supplied). (Refer to the separate “Basic Owner’s Manual” for further information on operating environments or installation).



When sending images to [External] in [AV device]
• Register destination device in [External AV device]. (P136)



■ Images that can be sent

Images to send	Destination			
	[Smartphone]	[WEB Service]	[AV device]	[PC]
JPEG	○	○	○	○
MPO	○∗2	○∗2	○∗2,3	○∗2,3
AVCHD	—	○∗1	—∗4	—∗4
MP4	○	○	○	○

∗1 Images can only be sent with [Save and Quit (use Image Uploader later)]. (P142)
∗2 The picture will be converted to JPEG and sent.
∗3 3D pictures can be dubbed with a recorder or copied to a computer if an SD card or USB cable is used. Refer to “Saving 3D pictures” (P149) for details.
∗4 [AVCHD] motion pictures can be dubbed with a recorder or copied to a computer if an SD card or USB cable is used. Refer to “Saving the Recorded Still Pictures and Motion Pictures” (P150) for details.

■ Using WEB services.

When sending images to Web services, such as Facebook or YouTube, the WEB service being used must be registered with the “LUMIX CLUB”. Registering multiple WEB services will send images to all services simultaneously.

- Check the “FAQ/Contact us” on the following site for compatible WEB services.
  http://lumixclub.panasonic.net/eng/c/

Preparation:
Make sure that you have created an account on the WEB service you want to use, and have the login information available.

1 Connect to the “LUMIX CLUB” site using a smartphone or computer.
http://lumixclub.panasonic.net/eng/c/

2 Enter your “LUMIX CLUB” login ID and password and log in to the service.
(P134)

3 Save your email address.

4 Select the WEB service to be used and save it.
- Follow the instructions on the screen to save the service.

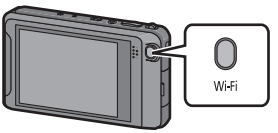
Note

- Images uploaded to the WEB Service cannot be displayed or deleted with this camera.
- If sending images fails, a report email outlining the failure will be sent to the email address registered with “LUMIX CLUB”.
- It is recommended to use a fully charged battery or AC adaptor (optional) when sending images.
- Pictures cannot be sent when the battery indication turns red and blinks.
- Sending images will be canceled if the battery indicator turns red and blinks while sending images. Pictures that could not be sent will not be deselected.
- If the picture is not displayed when sending images to a smartphone, or when sending images to the WEB service via a smartphone, reconnect the smartphone. (P126)
- When sending images on a mobile network, high packet communication fees may be incurred depending on the details of your contract.
- **Do not remove the memory card or battery, turn the camera OFF, or move to an area without any reception while sending images.**
- Details of the playback menu [Title Edit] or [Print Set] settings will not be sent.
- Pictures may not be completely sent depending on radio wave conditions. If the connection is terminated while sending pictures, pictures with missing sections may be sent.
- Some images taken with a different camera may not be able to be sent.
- Images that have been modified or edited with a computer may not be able to be sent.
- Refer to the manual of the destination equipment or the WEB service for more information on how to playback pictures.
- The LCD monitor display may become distorted for an instant while connected to the service, however this will not affect the image being sent.
- **Images may contain personal information that can be used to identify the user, such as a title, the time and date when the images was taken, and the location where the image was taken if the camera includes a GPS function. Check this information before uploading images to WEB services.**

Select a single image and send it

1 **In Playback Mode, select the image to send and press [Wi-Fi].**

- When the password input screen is displayed, enter the password set in [Wi-Fi Password].



2 **Select destination.**

3 **Check the destination and touch [Yes].**

- A message is displayed when the image has been sent. Touch [OK].

Select multiple images and send them

• Images saved on the built-in memory cannot be sent. Copy the pictures to a card (P112) before sending.

1 In Playback Mode, touch [ ].

• When the password input screen is displayed, enter the password set in [Wi-Fi Password].



2 Touch the image you want to send (repeat).

• The page can be changed by touching [◁]/[▷].
• Touch the same image again to cancel the selection.
• Touching [CANCEL] will cancel all selections.



3 Touch [Set].

• Pictures or motion pictures can also be sent by dragging selected items upward.

4 Touch send method.

Send method	Setting Details
[Send now over Wi-Fi]	Send images immediately using the Wi-Fi function. • To transmit a motion picture recorded in [AVCHD], transmit it using the upload tool “LUMIX Image Uploader”.
[Save and Quit (use Image Uploader later)]	Send images to the WEB service (Facebook/YouTube) using the upload tool “LUMIX Image Uploader”. “LUMIX CLUB” can also be used to send images to WEB services or external AV device. • Settings can be changed so that the upload tool “LUMIX Image Uploader” within the camera is automatically copied to the memory card. Upload pictures after connecting to a computer (P154). Refer to P156 for details.

5 (When [Send now over Wi-Fi] is selected) Select destination.

• Perform the steps outlined in “Change destination/detailed settings” (P143).

Note

• [Save and Quit (use Image Uploader later)] cannot be set for memory cards smaller than 512 MB.
• [Save and Quit (use Image Uploader later)] may not be able set for images taken with other cameras.

Change destination/detailed settings

1 Touch the picture destination icon and move it to the front.

- When sending images to the WEB service via a smartphone, select [WEB Service].
- Moving the destination icon to the front will display a description.



■ When using the same destination

- Previously set destinations are saved.

Touch the destination icon for the image again.

- A message is displayed when the image has been sent. Touch [OK].



2 Touch [List].

- Equipment that can be connected and a WEB service list will be displayed.
- When selecting [AV device], touch [Home] or [External].

3 Touch the destination name.

- When [WEB Service] or [External] in [AV device] is selected, multiple names can be selected. The selection will be cleared by touching the name again.

4 Touch [OK].

- A message is displayed when the image has been sent. Touch [OK].

■ About the “LUMIX CLUB” certificate

The camera stores the route certificate required when accessing the “LUMIX CLUB” site.

The certificate has an expiration date. If the certificate has expired, a confirmation screen will be displayed to update the certificate when sending images to the LUMIX CLUB. Touch [Yes] and update the certificate.

- If the certificate has expired, images cannot be sent to the [WEB Service] or [External AV device] until it has been updated.

Playing Back Pictures on a TV Screen

Pictures recorded with this unit can be played back on a TV screen.

Preparations: Turn this unit and the TV off.

Confirm the terminals on your TV and use a cable compatible with the terminals. Image quality may vary with the connected terminals.

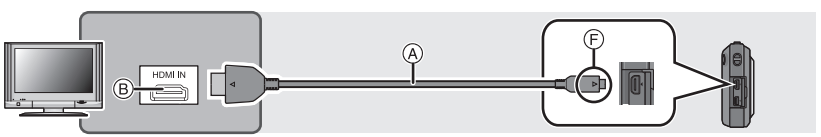
❶ High quality
❷ HDMI socket
❸ Video socket



1 Connect the camera and a TV.

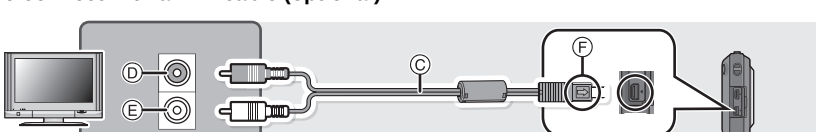
- Check the direction of the terminals and plug in/out straight holding onto the plug. (It may result in malfunction by the deforming of the terminal if it is plugged in obliquely or in wrong direction.)

To connect with an HDMI micro cable (optional)



- Always use a genuine Panasonic HDMI micro cable (RP-CHEU15; optional).
  Part numbers: RP-CHEU15 (1.5 m) (5 feet)
- Pictures are not displayed on the LCD monitor.
  – When [VIERA Link] is [Off]:
  Touch icons for operation are displayed.
  – When [VIERA Link] is [On]:
  Touch icons for operation are not displayed.
- Some playback functions are restricted.
- [Playback] Mode menu and [Setup] menu cannot be used.
- [My Photo Album]/[Beauty Retouch]/[Art Retouch]/[Image Stamp] cannot be used.
- For more details about VIERA Link (HDMI) playback, refer to P146.

To connect with an AV cable (optional)



- Always use a genuine Panasonic AV cable (DMW-AVC1; optional).
- Check the [TV Aspect]. (P46)

Ⓐ HDMI micro cable (optional)
Ⓑ HDMI socket
Ⓒ AV cable (optional)
Ⓓ Yellow: to the video input socket
Ⓔ White: to the audio input socket
Ⓕ Align the marks, and insert.

2 Turn on the TV and select the input to match the terminal in use.

3 Turn the camera on, and set to the Playback Mode.

Note

- Depending on the [Aspect Ratio], black bands may be displayed on the top and bottom or the left and right of the pictures.
- Change the screen mode on your TV if the picture is displayed with the top or bottom cut off.
- Output from the HDMI micro cable has priority when both AV cable and HDMI micro cable are connected.
- The connection with the USB connection cable will take priority when you connect the USB connection cable simultaneously with the HDMI micro cable.
- When you play back a picture vertically, it may be blurry.
- When pictures are displayed, they may not be displayed properly depending on the type of TV.
- Read the operating instructions for the TV.
- Audio will be played back as monaural.

The recorded still pictures can be played back on a TV with an SD Memory Card slot.

- Proper playback (aspect ratio) will be dependent on the TV used for viewing.
- Motion pictures recorded with [AVCHD] can be played back on Panasonic TVs (VIERA) with the AVCHD logo mark.
- For cards compatible with playback, refer to the operating instructions of the TV.

Playback using VIERA Link (HDMI)

What is the VIERA Link (HDMI) (HDAVI Control™)?
- VIERA Link™ is a new name for EZ Sync™.
- This function allows you to use your remote control for the Panasonic TV for easy operations when this unit has been connected to a VIERA Link compatible device using a HDMI micro cable (optional) for automatic linked operations. (Not all operations are possible.)
- VIERA Link is a unique Panasonic function built on a HDMI control function using the standard HDMI CEC (Consumer Electronics Control) specification. Linked operations with HDMI CEC compatible devices made by other companies are not guaranteed. When using devices made by other companies that are compatible with VIERA Link, refer to the operating instructions for the respective devices.
- This unit is compatible with VIERA Link Ver.5. VIERA Link Ver.5 is the newest Panasonic version and is also compatible with existing Panasonic VIERA Link devices. (As of December 2010)

Preparations: Set the [VIERA Link] to [On]. (P46)

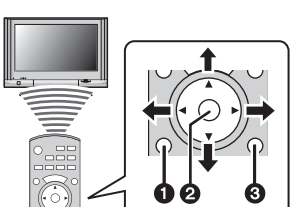
1 Connect this unit to a Panasonic TV compatible with VIERA Link with an HDMI micro cable (optional) (P144).

2 Turn the camera on, and set to the Playback Mode.

3 Operate with the remote control for the TV.

- Operate with reference to the operation icons displayed on the screen.

Panasonic TV compatible with VIERA Link



❶ [SUB MENU]
❷ [OK]
❸ [RETURN]

∗ The shape of the remote control varies depending on the region. Operate following the TV guide displayed on screen.

Note

- To play back the audio of the motion pictures, set the [Sound] in the Slide Show setting screen to [AUTO] or [AUDIO].
- Operation icons are hidden, if no operation is performed for a while when the operation icons are displayed. Operation icons are displayed when one of the following buttons is pressed while the operation icons are not displayed.
  – ▲/▼/◄/►, [OK], [SUB MENU], [RETURN], Red button, Green button, Yellow button
- It is recommended to connect this unit to an HDMI terminal other than the HDMI1 if there are 2 or more HDMI input terminals on the TV.
- Operation on this unit will be limited.

■ Other linked operations

Turning the power off:

If you use the remote control for the TV to turn off the power, the power on this unit also turns off.

Automatic input switching:

- If you connect with a HDMI micro cable and then turn on the power on this unit, the input channel on the TV automatically switches to this unit's screen. If the TV's power is in standby status, it will turn on automatically (if [Set] has been selected for the TV's [Power on link] setting).
- Depending on the HDMI terminal on the TV, the input channel may not switch automatically. In this case, use the remote control for the TV to switch the input channel. (For details on how to switch input, please read the operating instructions for the TV.)
- If VIERA Link does not work properly, refer to page 181.

Note

- If you are unsure whether or not the TV you are using is compatible with VIERA Link, read the operating instructions for the TV.
- Available linked operations between this unit and a Panasonic TV is different depending on the types of Panasonic TVs even if they are compatible with VIERA Link. Refer to the operating instructions of the TV for the operations that support the TV.
- Operation is not possible with a cable that is not based on the HDMI standard.
  Always use a genuine Panasonic HDMI micro cable (RP-CHEU15; optional).
  Part numbers: RP-CHEU15 (1.5 m) (5 feet)

Playing back 3D pictures

Playing back 3D pictures

Connecting the camera to a 3D compatible television and playing back pictures taken in 3D allows you to enjoy 3D pictures for extra impact.
It is also possible to playback the recorded 3D pictures by inserting an SD card into the 3D compatible television with an SD card slot.

For current information regarding devices that can play back 3D pictures recorded with this unit, please refer to the below support site.
http://panasonic.jp/support/global/cs/dsc/ (This Site is English only.)

Preparations: Set the [3D Playback] to [3D]. (P47)

Connect the unit to a 3D compatible television using the HDMI micro cable and display the playback screen. (P144)

- When [VIERA Link] (P46) is set to [On] and the camera is connected to a TV supporting VIERA Link, input of the TV will be switched automatically and playback screen will be displayed. Refer to P146 for details.
- For the pictures recorded in 3D, [3D] will appear on the thumbnail display at playback.

■ Play back as a 3D slide show by selecting only the still pictures recorded in 3D

Select [3D Play] in [Slide Show] in the [Playback Mode]. (P97)

■ Play back in 3D by selecting only the still pictures recorded in 3D

Select [3D Play] in [Filtering Play] in the [Playback Mode]. (P99)

■ Switch the playback method for the still pictures recorded in 3D

1 Select the picture recorded in 3D.

2 Select [2D/3D Settings] on the [Playback Mode]. (P96)

- Playback method will switch to 3D if it is playing back in 2D (conventional image), or it will switch to 2D if it is playing back in 3D.
- If you feel tired, uncomfortable or otherwise strange when playing back pictures recorded in 3D, set to 2D.

Note

- When the picture is not appropriate to view in 3D (disparity is too large, etc.)
  - [Slide Show]:
    The picture will be played back in 2D.
  - [Filtering Play]:
    Confirmation screen is displayed. Select whether or not to play back the picture in 3D.
- 2 pictures may be displayed side by side when a 3D picture is played back on a TV that is not 3D compatible.
- When a picture recorded in 3D is displayed on the LCD monitor of this unit, it is played back in 2D (conventional image).
- A black screen is displayed for a few seconds when switching back and forth playback of 3D pictures and 2D pictures.
- When you select a 3D picture thumbnail, it may take a few seconds for playback to start. After playback, the thumbnail display may take a few seconds to reappear.
- When viewing 3D pictures, your eyes may become tired if you are too close to the television screen.
- If your television does not switch to a 3D picture, make the necessary settings on the TV. (For details, refer to the operating instructions of the TV.)
- Pictures cannot be deleted when 3D pictures are being played back. The [Setup] menu, [Playback] menu and Playback zoom functions cannot be used.

Saving 3D pictures

■ Copying to a PC

- For details, refer to “Copying to a PC using “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi”” on P152.

Saving the Recorded Still Pictures and Motion Pictures

Methods to export still pictures and motion pictures to other devices will vary depending on the file format. (JPEG, MPO, AVCHD, or MP4). Here are a few suggestions.

Copy by inserting the SD card into the recorder

File formats that can be used: [JPEG], [AVCHD]

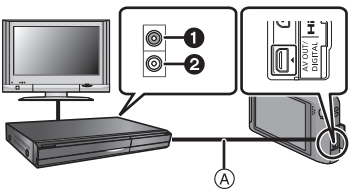
It is possible to copy onto Blu-ray disc, DVD disc, or hard disk by inserting an SD card with still pictures and motion pictures recorded by this unit into a Panasonic Blu-ray Disc Recorder or DVD Recorder.
Check the latest information about the equipment that can copy directly by inserting the SD card recorded by this unit, and equipment that is compatible with high definition on the following website.
http://panasonic.jp/support/global/cs/dsc/ (This Site is English only.)

- See the instruction manual for the recorder about the details of copying and playing back.
- **Note that the equipment described may not be available in certain countries and regions.**



Copy the playback image using an AV cable

File formats that can be used: [AVCHD], [MP4]
Copy images played back with this unit to Blu-ray disc, DVD disc, hard disk, or video using a Blu-ray Disc Recorder, DVD recorder, or video.
This can be played back with equipment that is not compatible with high definition, so it is convenient for distributing copies. Image will be standard quality instead of high definition at this time.



❶ Yellow: to the video input socket
❷ White: to the audio input socket
Ⓐ AV cable (optional)

1 Connect this unit with the recording equipment with an AV cable (optional).
2 Start the playback of this unit.
3 Start the recording on the recording equipment.
- When ending the recording (copying), stop the playback on this unit after stopping the recording of the recording equipment.

Note
- When you play back motion pictures on 4:3 aspect ratio TV, you must set [TV Aspect] (P46) on this unit to [4:3] before starting a copy. The image will be vertically long if you play back motion pictures copied with [16:9] setting on a [4:3] aspect TV.
- Displayed touch icons, etc., are also recorded.
- See the instruction manual for the recording equipment regarding the details of copying and playing back.

Copying to a PC using “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi”

File formats that can be used: [JPEG], [MPO], [AVCHD], [MP4]
It is possible to acquire still pictures and motion pictures recorded in [AVCHD] or [MP4] formats, or create conventional standard quality DVD video from the motion picture that was recorded as [AVCHD], using “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” in the CD-ROM (supplied).

Also, you can write images to DVD, combine multiple pictures to create a single panorama picture, or create a slide show by adding audio and/or music. These pictures can then be stored onto a DVD.



1 Install “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” to the PC.

- Read the separate “Basic Owner’s Manual” for more information about the software in the CD-ROM (supplied) and how to install it.

2 Connect camera to PC.

- For details on how to connect the camera, refer to “Connecting with a USB connection cable” (P154).

3 Copy the images to a PC using “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi”.

- For details, refer to the operating instructions of “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” (PDF).

Note

- Do not delete or move imported files or folders in Windows Explorer. When viewing in “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi”, you will not be able to play back or edit.

Loading images on a PC

You can transfer the pictures in the camera to a PC by connecting the camera and the PC.

- Some PCs can read directly from the card removed from the camera. For details, refer to the operating instructions of your PC.
- If the computer being used does not support SDXC Memory Cards, a message prompting you to format may appear. (Doing so will cause recorded images to be erased so do not choose to format.)
  If the card is not recognized, please refer to the below support site.
  http://panasonic.net/avc/sdcard/information/SDXC.html
- You can easily print out or mail the pictures you have imported. Use of the "PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi" bundled software on the CD-ROM (supplied) is a convenient way of doing this.
- Read the separate instructions for the supplied software for more information about the software in the CD-ROM (supplied) and how to install it.

■ PC that can be used

	Windows			Mac
	98/98SE or older	Me/2000	XP/Vista/7	OS 9/OS X
Can the PHOTOfunSTUDIO be used?	—		○*1	—
Can the [AVCHD] motion picture be acquired to the PC?	—		○*2	—
Can the [MP4] motion picture be acquired to the PC?	—	○		○ (OS 9.2.2/OS X [10.1~10.7])
Can the still picture be acquired to the PC?	—	○		○ (OS 9.2.2/OS X [10.1~10.7])

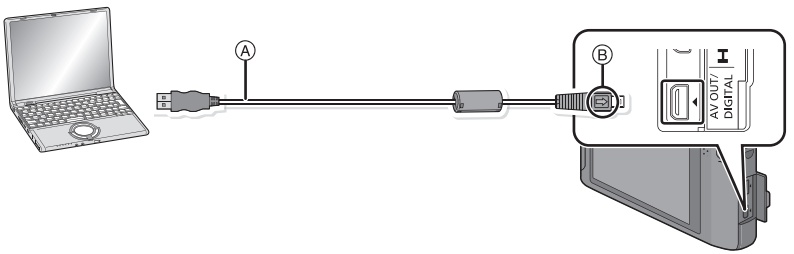
- PC with Windows 98/98SE or older, or Mac OS 8.x or older cannot be connected via USB, but it can acquire the pictures if an SD memory card reader/writer can be used.

*1 It is necessary for Internet Explorer 6.0 or newer to be installed. PC with higher processing performance is required depending on the function to be used. It may not play back correctly or operate correctly depending on the environment of the PC used.

***2 Always acquire the [AVCHD] motion pictures using the "PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi".**

Connecting with a USB connection cable

Preparations:
Turn on the camera and the PC.
Remove the card before using the pictures in the built-in memory.



Ⓐ USB connection cable (supplied)
- Check the directions of the connectors, and plug them straight in or unplug them straight out. (Otherwise the connectors may be bent out of shape which may cause malfunction.)

Ⓑ Align the marks, and insert.
- Use a battery with sufficient battery power or the AC adaptor (optional). If the remaining battery power becomes low while the camera and the PC are communicating, the status indicator blinks and the alarm beeps.
  Refer to “Disconnecting the USB connection cable safely” (P156) before disconnecting the USB connection cable. Otherwise, data may be destroyed.

1 Connect the camera to a PC via the USB connection cable Ⓐ (supplied).

- Do not use any other USB connection cables except the supplied one. Use of cables other than the supplied USB connection cable may cause malfunction.

2 Touch [PC].

- If [USB Mode] (P45) is set to [PC] in the [Setup] menu in advance, the camera will be automatically connected to the PC without displaying the [USB Mode] selection screen.
- When the camera has been connected to the PC with [USB Mode] set to [PictBridge(PTP)], a message may appear on the PC’s screen. Select [Cancel] to close the screen, and disconnect the camera from the PC. Then set [USB Mode] to [PC] again.

3 Operate the PC.

- You can save the images into the PC by drag and drop the image or the folder with the image you would like to transfer onto the different folder in the PC.

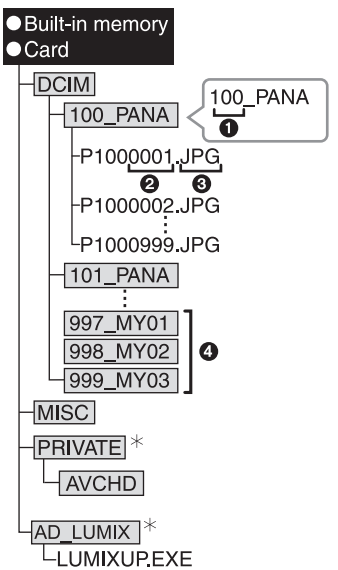
Note

- Before connecting or disconnecting the AC adaptor (optional), turn the camera off.
- Before inserting or removing a card, turn the camera off and disconnect the USB connection cable. Otherwise, data may be destroyed.

■ Viewing the contents of the built-in memory or card using the PC (folder composition)

For Windows: **A drive ([Removable Disk]) is displayed in [Computer]**

For Mac: **A drive ([LUMIX], [NO_NAME] or [Untitled]) is displayed on the desktop**



DCIM:	Images
❶ Folder number	
❷ File number	
❸ JPG:	Still pictures
MP4:	[MP4] Motion pictures
MPO:	3D pictures
❹ [My Photo Album]	
MISC:	DPOF print
	Favorite
AVCHD:	[AVCHD] Motion pictures
AD_LUMIX:	For Upload set
LUMIXUP.EXE:	Upload tool “LUMIX Image Uploader”

∗ Cannot be created in the built-in memory.

A new folder is created when pictures are taken in the following situations.

- After [No.Reset] (P45) in the [Setup] menu has been executed
- When a card containing a folder with the same folder number has been inserted (Such as when pictures were taken using another maker of camera)
- When there is a picture with file number 999 inside the folder

■ **Disconnecting the USB connection cable safely**

Select the [ ] icon in task tray displayed on the PC, and then click [Eject DMC-XXX] (XXX varies by model).

- Depending on your PC's settings, this icon may not be displayed.
- Proceed with the hardware removal using "Safely Remove Hardware" on the task tray of the PC. If the icon is not displayed, check that [Access] is not displayed on the LCD monitor of the digital camera before removing the hardware.

■ **Connection in the PTP Mode (Windows® XP, Windows Vista®, Windows® 7 and Mac OS X only)**

Set [USB Mode] to [PictBridge(PTP)].

- Data can now be read only from the card into the PC.
- When there are 1000 or more pictures on a card, the pictures may not be imported in the PTP Mode.
- Motion picture cannot be played back in PTP Mode.

Upload images to the WEB service using the upload tool "LUMIX Image Uploader"

Send images to the WEB service (Facebook/YouTube) using the upload tool (LUMIX Image Uploader). "LUMIX CLUB" can be used to send pictures to other WEB services. You do not need to transfer the images to the PC or install dedicated software onto the PC, so you can easily upload the images even away from your home or work if there is a PC that is connected to the network.

- It is only compatible with a PC with Windows XP/Windows Vista/Windows 7.
- For details, refer to the operating instructions of "LUMIX Image Uploader" (PDF).

Preparations:
Use "Select multiple images and send them" (P142) and select [Save and Quit (use Image Uploader later)] from step **4** to set the picture to be uploaded.
Connect the PC to the Internet.
Make sure that you have created an account on the WEB service you want to use, and have the login information available. When sending images to Web services, the WEB service being used must be registered with the "LUMIX CLUB" (P134).

1 **Startup the "LUMIXUP.EXE" by double-clicking it. (P155)**

- An upload tool "LUMIX Image Uploader" may startup automatically if the "PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi" software on the CD-ROM (supplied) is installed.

2 **Select the destination to upload.**

- Operate following the instructions displayed on the PC screen.

Note

- Operation cannot be guaranteed for future specification changes of the YouTube and Facebook services. Service contents or screen may be modified without notice.
  (This service is as of August 1st, 2011)
- Do not upload any images protected by copyright, unless you own the copyright yourself, or have permission from the relevant copyright holder.

Printing the Pictures

If you connect the camera to a printer supporting PictBridge, you can select the pictures to be printed out and instruct that printing be started from the camera's LCD monitor.

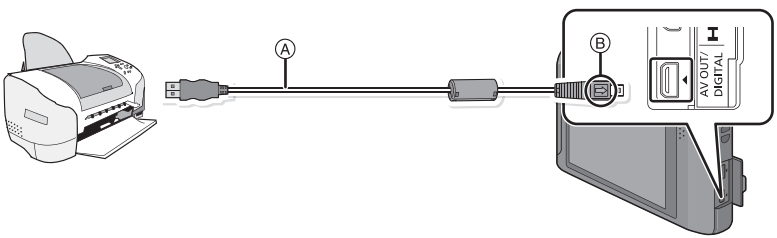
- Some printers can print directly from the card removed from the camera. For details, refer to the operating instructions of your printer.

Preparations:

Turn on the camera and the printer.

Remove the card before printing the pictures from the built-in memory.

Perform the print quality and other settings at the printer before printing the pictures.



Ⓐ USB connection cable (supplied)

- Check the directions of the connectors, and plug them straight in or unplug them straight out. (Otherwise the connectors may be bent out of shape which may cause malfunction.)

Ⓑ Align the marks, and insert.

- Use a battery with sufficient battery power or the AC adaptor (optional). If the remaining battery power becomes low while the camera and the printer are connected, the status indicator blinks and the alarm beeps. If this happens during printing, stop printing at once. If not printing, disconnect the USB connection cable.

1 Connect the camera to a printer via the USB connection cable Ⓐ (supplied).

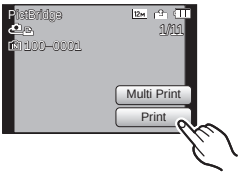
2 Touch [PictBridge(PTP)].

Note

- Do not disconnect the USB cable while [⊠] (Cable disconnect prohibit icon) is displayed. (may not be displayed depending on the type of printer used)
- Do not use any other USB connection cables except the supplied one.
  Use of cables other than the supplied USB connection cable may cause malfunction.
- Before connecting or disconnecting the AC adaptor (optional), turn the camera off.
- Before inserting or removing a card, turn the camera off, and disconnect the USB connection cable.
- Motion pictures cannot be printed out.

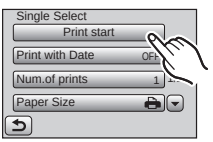
Selecting a single picture and printing it

1 **Drag the screen horizontally to select an image, and then touch [Print].**



2 **Touch [Print start].**

- Refer to P159 for the items which can be set before starting to print the pictures.
- Disconnect the USB connection cable after printing.



Selecting multiple pictures and printing them

1 **Touch [Multi Print].**

2 **Touch the item.**

Item	Description of settings
[Multi Select]	Multiple pictures are printed at one time. • Select the picture you wish to print. (Touch the same picture again to cancel the selection) • After the pictures have been selected, touch [OK].
[Select All]	Prints all the stored pictures.
[Print Set (DPOF)]	Prints the pictures set in [Print Set] only. (P108)
[Favorite]	Prints the pictures set as favorites only. (P107)

3 **Touch [Print start].**

- If the print check screen has appeared, select [Yes], and print the pictures.
- Refer to P159 for the items which can be set before starting to print the pictures.
- Disconnect the USB connection cable after printing.

Print Settings

Select and set the items both on the screen in step 2 of the "Selecting a single picture and printing it" and in step 3 of the "Selecting multiple pictures and printing them" procedures.

- When you want to print pictures on a paper size or a layout which is not supported by the camera, set [Paper Size] or [Page Layout] to [🖨] and then set the paper size or the layout on the printer. (For details, refer to the operating instructions of the printer.)
- When [Print Set (DPOF)] has been selected, the [Print with Date] and [Num.of prints] items are not displayed.

[Print with Date]

Item	Description of settings
[ON]	Date is printed.
[OFF]	Date is not printed.

- If the printer does not support date printing, the date cannot be printed on the picture.
- Depending on the printer, the date print settings of the printer may take precedence so check if this is the case.
- When printing images with [Date Stamp] or [Text Stamp], please remember to set Print With Date to [OFF] or the date will print on top.

Note

When asking the photo shop to print the pictures

- By stamping the date using [Date Stamp] (P92) or [Text Stamp] (P102) or setting date printing at the time of the [Print Set] (P108) setting before going to a photo shop, the dates can be printed at the photo shop.

[Num.of prints]

You can set the number of prints up to 999.

[Paper Size]

Item	Description of settings
	Settings on the printer are prioritized.
[L/3.5″×5″]	89 mm×127 mm
[2L/5″×7″]	127 mm×178 mm
[POSTCARD]	100 mm×148 mm
[16:9]	101.6 mm×180.6 mm
[A4]	210 mm×297 mm
[A3]	297 mm×420 mm
[10×15cm]	100 mm×150 mm
[4″×6″]	101.6 mm×152.4 mm
[8″×10″]	203.2 mm×254 mm
[LETTER]	216 mm×279.4 mm
[CARD SIZE]	54 mm×85.6 mm

• Paper sizes not supported by the printer will not be displayed.

[Page Layout] (Layouts for printing that can be set with this unit)

Item	Description of settings
	Settings on the printer are prioritized.
	1 picture with no frame on 1 page
	1 picture with a frame on 1 page
	2 pictures on 1 page
	4 pictures on 1 page

• An item cannot be selected if the printer does not support the page layout.

■ Layout printing

When printing a picture several times on 1 sheet of paper

For example, if you want to print the same picture 4 times on 1 sheet of paper, set [Page Layout] to [ ] and then set [Num.of prints] to 4 for the picture that you want to print.

When printing different pictures on 1 sheet of paper

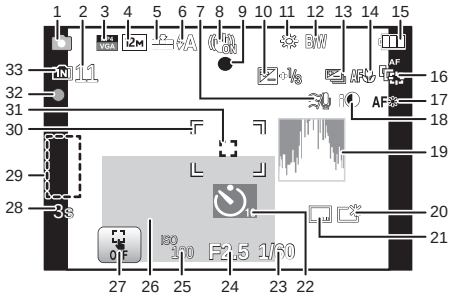
For example, if you want to print 4 different pictures on 1 sheet of paper, set [Page Layout] to [ ] and then set [Num.of prints] to 1 for each of the 4 pictures.

Note

• The camera is receiving an error message from the printer when the [●] indication lights orange during printing. After finishing printing, make sure there are no problems with the printer.
• If the number of prints is high, the pictures may be printed several times. In this case, the remaining number of prints indicated may differ from the number set.

Screen Display

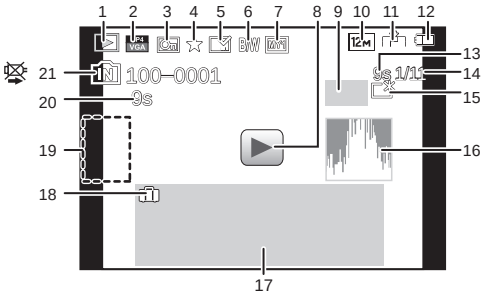
■ In recording



1 Recording Mode
2 Number of Recordable Pictures (P16)
Available recording time* (P16): R8m30s
3 Recording Mode (when recording motion pictures) (P93)
Recording quality (P94)
4 Picture size (P77)
5 Quality (P78)
6 Flash Mode (P73)
7 Wind cut (P95)
8 Optical Image Stabilizer (P92)
: Jitter alert (P19)
9 Focus (P22)
10 Exposure Compensation (P86)
11 White Balance (P80)
: Motion Deblur (P25)
12 Color Mode (P90)
13 Auto Bracket (P87)
: Burst (P90)
14 Macro Mode (P84)
15 Battery indication (P10)
16 AF Tracking (P52)
17 AF Assist Lamp (P91)
18 Intelligent Exposure (P88)
19 Histogram (P43)
20 LCD Mode (P42)
: LCD power save (P44)
21 Date Stamp (P92)
22 Self-timer Mode (P76)
23 Shutter speed (P21)
: Minimum shutter speed (P88)
24 Aperture value (P21)
25 ISO sensitivity (P79)
26 Current date and time
: World Time (P39)
Number of days that have passed since the departure date (P40)
Location (P40)
Name (P61)
Age (P61)
Zoom (P53):
EZ i.ZOOM W T 1X
27 Touch AF/AE canceled (P51)
28 Elapsed recording time* (P27): 8m30s
29 Shortcut setting area (P38)
30 AF area (P22)
31 Spot AF area (P82)
32 Recording state
33 Built-in memory (P14)
: Card (P14) (displayed only during recording)

* “h” is an abbreviation for hour, “m” for minute and “s” for second.

■ In playback



1 Playback Mode (P96)
2 Recording Mode (when recording motion pictures) (P93)
Recording quality (P94)
3 Protected picture (P110)
4 Favorites (P107)
5 Date/Text stamped display (P92, 102)
6 Color Mode (P90)
7 My Photo Album registration (P114)
8 Playback (Motion Picture) (P32)
9 : Number of prints (P108)
: Beauty Retouch (P115)
: Art Retouch (P117)
10 Picture size (P77)
11 Quality (P78)
12 Battery indication (P10)
13 Elapsed playback time* (P32): 8m30s
14 Picture number/Total pictures
15 Power LCD (P42)
: LCD power save (P44)
16 Histogram (P43)
17 Location (P40)
Recording information (P49)
Name (P61, 70)
Age (P61)
Title (P101)
18 Number of days that have passed since the departure date (P40)
Recorded date and time/: World Time (P39)
19 Shortcut setting area (P38)
20 Motion picture recording time* (P32): 8m30s
21 Folder/File number (P155)
Built-in memory (P14)
Cable disconnection warning icon (P157)

* “h” is an abbreviation for hour, “m” for minute and “s” for second.

Cautions for Use

Optimal use of the camera

Keep this unit as far away as possible from electromagnetic equipment (such as microwave ovens, TVs, video games etc.).

- If you use this unit on top of or near a TV, the pictures and/or sound on this unit may be disrupted by electromagnetic wave radiation.
- Do not use this unit near cell phones because doing so may result in noise adversely affecting the pictures and/or sound.
- Recorded data may be damaged, or pictures may be distorted, by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by microprocessors may adversely affect this unit, disturbing the pictures and/or sound.
- If this unit is adversely affected by electromagnetic equipment and stops functioning properly, turn this unit off and remove the battery or disconnect AC adaptor (optional). Then reinsert the battery or reconnect AC adaptor and turn this unit on.

Do not use this unit near radio transmitters or high-voltage lines.

- If you record near radio transmitters or high-voltage lines, the recorded pictures and/or sound may be adversely affected.

Always use the supplied cords and cables. If you use optional accessories, use the cords and the cables supplied with them.
Do not extend the cords or the cables.

Do not spray the camera with insecticides or volatile chemicals.

- If the camera is sprayed with such chemicals, the body of the camera may be damaged and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the camera for a long period of time.

Cleaning

Before cleaning the camera, remove the battery or the DC coupler (For shop display purpose only), or disconnect the power plug from the outlet. Then wipe the camera with a dry soft cloth.

- When the camera is soiled badly, it can be cleaned by wiping the dirt off with a wrung wet cloth, and then with a dry cloth.
- Do not use solvents such as benzine, thinner, alcohol, kitchen detergents, etc., to clean the camera, since it may deteriorate the external case or the coating may peel off.
- When using a chemical cloth, be sure to follow the accompanying instructions.

About the LCD monitor

- Do not press the LCD monitor with excessive force. Uneven colors may appear on the LCD monitor and it may malfunction.
- If the camera is cold when you turn it on, the picture on the LCD monitor will be slightly darker than usual at first. However, the picture will return to normal brightness when the internal temperature of the camera increases.

Extremely high precision technology is employed to produce the LCD monitor screen. However, there may be some dark or bright spots (red, blue or green) on the screen. This is not a malfunction. The LCD monitor screen has more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. The spots will not be recorded on pictures on the built-in memory or a card.

About the Lens

- Do not press against the lens with excessive force.
- Do not leave the camera with the lens facing the sun, as rays of light from the sun may cause it to malfunction. Also, be careful when placing the camera outside or near a window.

Battery

The battery is a rechargeable lithium ion battery. Its ability to generate power comes from the chemical reaction that takes place inside it. This reaction is susceptible to the surrounding temperature and humidity. If the temperature is too high or too low, the operating time of the battery will become shorter.

Always remove the battery after use.
- Place the removed battery in a plastic bag, and store or carry away from metallic objects (clips, etc.).

If you drop the battery accidentally, check to see if the body of the battery and the terminals are damaged.
- Inserting a damaged battery in the camera will damage the camera.

Bring charged spare batteries when going out.
- Be aware that the operating time of the battery becomes shorter in low temperature conditions such as at a ski resort.
- When you travel, do not forget to bring the battery charger (supplied) so that you can charge the battery in the country that you are traveling in.

Dispose of unusable battery.
- The battery has a limited life.
- Do not throw the battery into fire because it may cause an explosion.
- The unusable battery should be discarded in accordance with battery recycling laws. Call the RBRC hotline at 1-800-822-8837 for information.

Do not allow battery terminals to come into contact with metal objects (such as necklaces, hairpins etc.).
- This can cause short circuiting or heat generation and you may be badly burned if you touch a battery.

Charger

- If you use the battery charger near a radio, the radio reception may be disturbed.
- Keep the charger 1 m (3.28 feet) or more away from radios.
- The charger may generate whirring sounds when it is being used. This is not a malfunction.
- After use, be sure to disconnect the power supply device from the electrical outlet. (A very small amount of current is consumed if it is left connected.)
- Keep the terminals of the charger and battery clean.

About 3D

■ About 3D viewing

Anyone who is hyper sensitive to light, suffers from heart disease or is otherwise unwell should avoid viewing 3D contents.

• Viewing 3D contents may have an adverse effect to the individual.

If you feel tired, uncomfortable or otherwise strange when viewing 3D contents, stop viewing at once.

• Continuing to view may cause illness.
• After stopping viewing, please rest appropriately.

When viewing 3D contents, we recommend taking a break every 30 to 60 minutes.

• Viewing for extended periods may cause eye-fatigue.

Short-sighted or long-sighted persons, those with differences in the sight of their right and left eyes, and those with astigmatism are advised to correct their vision by wearing glasses etc.

Stop viewing if you can clearly see a double image while viewing 3D contents.

• There are differences in the way that different people experience 3D contents. Please correct your sight appropriately before viewing 3D contents.
• You can change the 3D setting of your television or 3D output setting of the unit to 2D.

Card

Do not leave the card where the temperature is high, where electromagnetic waves or static electricity are easily generated or exposed to direct sunlight.
Do not bend or drop the card.
- The card may be damaged or the recorded content may be damaged or deleted.
- Put the card in the card case or the storage bag after use and when storing or carrying the card.
- Do not allow dirt, dust or water to get into the terminals on the back of the card and do not touch the terminals with your fingers.

Notice for when transferring to another party, or disposing of the memory card
- "Format" or "delete" using the camera or a PC will only modify the file management information, and it will not erase the data in the memory card completely.
  It is recommended to physically destroy the memory card or use the commercially available computer data deletion software to completely erase the data in the memory card before transferring to another party or disposing.
  Management of data in the memory card is the responsibility of the user.

About the personal information

Setting a Wi-Fi password is recommended to protect personal information. (P137)
If a name or birthday is set for [Baby1]/[Baby2]/Face Recognition function, this personal information is kept in the camera and recorded in the image.

Disclaimer
- Information including personal information may be altered or vanish due to erroneous operation, effect of static electricity, accident, malfunction, repair, or other handlings.
  Please note in advance that Panasonic is not liable in any way for any direct or indirect damage from the alteration or vanishing of information or personal information.

When requesting a repair, transferring to another party or disposing
- After making a copy of personal information, always delete information such as personal information and wireless LAN connection settings that you have saved within the camera with [Reset Wi-Fi Settings] (P45).
- Reset the settings to protect the personal information. (P45)
- If there are pictures stored in the built-in memory, copy them into the memory card (P112) before formatting the built-in memory (P47) as needed.
- Remove the memory card from the camera when requesting a repair.
- Built-in memory and settings may return to factory default when camera is repaired.
- Please contact the dealer where you purchased the camera or your nearest Service Center if above operations are not possible due to malfunction.

When transferring to another party, or disposing of the memory card, please refer to "Notice for when transferring to another party, or disposing of the memory card" on P167.

When not using the camera for a long period of time

- Store the battery in a cool and dry place with a relatively stable temperature: [Recommended temperature: 15 °C to 25 °C (59 °F to 77 °F), Recommended humidity: 40%RH to 60%RH]
- Always remove the battery and the card from the camera.
- If the battery is left inserted in the camera, it will discharge even if the camera is turned off. If the battery continues to be left in the camera, it will discharge excessively and may become unusable even if charged.
- When storing the battery for a long period of time, we recommend charging it once a year. Remove the battery from the camera and store it again after it has completely discharged.
- We recommend storing the camera with a desiccant (silica gel) when you keep it in a closet or a cabinet.

About the picture data

- Recorded data may be damaged or lost if the camera breaks down due to inappropriate handling. Panasonic will not be liable for any damage suffered due to loss of recorded data.

About tripods or unipods

- When you use a tripod, make sure the tripod is stable when this unit is attached to it.
- You may not be able to remove the card or the battery when using a tripod or unipod.
- Make sure that the screw on the tripod or unipod is not at an angle when attaching or detaching the camera. You may damage the screw on the camera if you use excessive force when turning it. Also, the camera body and the rating label may be damaged or scratched if the camera is attached too tightly to the tripod or unipod.
- Read the operating instructions for the tripod or unipod carefully.
- Some tripods or unipods cannot be attached when the DC coupler (For shop display purpose only) and AC adaptor (optional) are connected.

Message Display

Confirmation messages or error messages will be displayed on the screen in some cases. The major messages are described below as examples.

[This picture is protected]

→ Delete the picture after canceling the protect setting. (P110)

[Some pictures cannot be deleted]/[This picture cannot be deleted]

- Pictures not based on the DCF standard cannot be deleted.
  → If you want to delete some pictures, format the card after saving necessary data on a PC etc. (P47)

[Cannot be set on this picture]

- [Title Edit], [Text Stamp] or [Print Set] cannot be set for pictures not based on the DCF standard.

[Not enough space on built-in memory]/[Not enough memory on the card]

- There is no space left on the built-in memory or the card.
- When you copy pictures from the built-in memory to the card (batch copy), the pictures are copied until the capacity of the card becomes full.

[Some pictures cannot be copied]/[Copy could not be completed]

- The following pictures cannot be copied.
  – When a picture with the same name as the picture to be copied exists in the copy destination. (Only when copying from a card to the built-in memory.)
  – Files not based on the DCF standard.
- Moreover, pictures recorded or edited by other equipment may not be copied.

[Built-In Memory Error
Format built-in memory?]

- This message will be displayed when you format the built-in memory on a PC.
  → Format the built-in memory on the camera again. (P47) The data on the built-in memory will be deleted.

[Memory card error.
This card cannot be used in this camera.
Format this card?]

- It is a format that cannot be used with this unit.
  → Insert a different card.
  → Format the card again with the camera after saving necessary data on a PC etc. (P47) Data will be deleted.

[Please turn camera off and then on again]/[System Error]

- This message appears when the camera is not operating properly.
  → Turn the camera off and on. If the message persists, contact the dealer or your nearest Service Center.

[Memory card parameter error]/[This memory card cannot be used]

→ Use a card compatible with this unit. (P14)
– SD Memory Card (8 MB to 2 GB)
– SDHC Memory Card (4 GB to 32 GB)
– SDXC Memory Card (48 GB, 64 GB)

[Insert SD card again]/[Try another card]

- An error has occurred accessing the card.
  → Insert the card again.
  → Insert a different card.

**[Read Error/Write Error
Please check the card]**

- It has failed to read or write data.
  → Remove the card after turning the power [OFF]. Insert the card again, turn the power on, and try to read or write the data again.
- The card may be broken.
  → Insert a different card.

[Motion recording was cancelled due to the limitation of the writing speed of the card]

- Use a card with SD Speed Class with “Class 4” or higher when recording motion pictures.
- In the event that it stops even after using a “Class 4” card or higher, the data writing speed has deteriorated so it is recommended to make a backup and then format (P47).
- Depending on the type of the card, motion picture recording may stop in the middle.

[Cannot record due to incompatible format(NTSC/PAL) data on this card.]

→ If you want to delete some pictures, format the card after saving necessary data on a PC etc. (P47)
→ Insert a different card.

[A folder cannot be created]

- A folder cannot be created because there are no remaining folder numbers that can be used.
  → Format the card after saving necessary data on a PC etc. (P47) If you execute [No.Reset] in the [Setup] menu after formatting, the folder number is reset to 100. (P45)

[Picture is displayed for 16:9 TV]/[Picture is displayed for 4:3 TV]

- Select [TV Aspect] in the [Setup] menu if you want to change the TV aspect. (P46)
- This message also appears when the USB connection cable is connected to the camera only. In this case, connect the other end of the USB connection cable to a PC or a printer. (P154, 157)

[Recording failed.]

- You may not record when the recording location is too dark/too bright, or if the subject does not have enough contrast when recording in 3D.

[This battery cannot be used]

- Use a genuine Panasonic battery. If this message is displayed even when a genuine Panasonic battery is used, contact the dealer or your nearest Service Center.
- If the battery terminal is dirty, clean it and remove any objects.

[Failed to connect wireless access point]/[Connection failed]/[No destination found]

- Check following regarding the wireless access point (broadband router).
  → The wireless access point (broadband router) information set on this unit is wrong. Check the authentication type, encryption type, and encryption key. (P130)
  → Power of the wireless access point (broadband router) is not turned on.
  → Setting of the wireless access point (broadband router) is not supported by this unit.
- Check the network setting of the destination.

[AVCHD video cannot be sent over Wi-Fi. Please use Image Uploader.]

- To transmit a motion picture recorded in [AVCHD], transmit it using the upload tool "LUMIX Image Uploader". (P142)

[No image to send]

- This is displayed when there is no image to transmit due to the restriction of the destination. Check the file type of the image to transmit. (P139)

[Connection failed. Please retry in a few minutes.]/[Network disconnected. Transfer stopped.]

- Radio waves from the wireless access point (broadband router) are getting weak. Perform the connection closer to the wireless access point (broadband router).
- There is no reply from the server or it has exceeded the communication processing time. Try again after a while.
- Depending on the wireless access point (broadband router), connection may be automatically disconnected after specific time has passed. Reconnect the connection again.

[Login failed. Please check Login ID and Password]

- Login ID or password for the "LUMIX CLUB" is not correct. Please enter it again. If you have forgotten the login ID or the password, there is information in the login screen of the "LUMIX CLUB" website.

[Some files cannot be sent because of destination limit]/[Transfer completed. Some files are left because of destination limit.]

- Check the file format of the image to send.
- Sending motion pictures may fail if the file size is too large. Split the motion picture using [Video Divide]. (P104)

[Unavailable. Please set Login settings on LUMIX CLUB web site.]

- Log into the "LUMIX CLUB" from your smartphone or PC, and set the login details of the destination WEB service.

[Both picture and video sharing service cannot be selected together]

- WEB services designed only for pictures, and WEB services designed only for motion pictures cannot be selected at the same time. Deselect one of the services.

[Cannot get IP address. Please set wireless AP's IP address setting to DHCP.]

- Turn on DHCP settings of the IP address of the connected wireless access points (broadband router).

[Cannot connect to server]

- If a message is displaying asking to update the route certificate, agree to update the route certificate.

Troubleshooting

First, try out the following procedures (P172–183).

If the problem is not resolved, **it may be improved by selecting [Reset] (P45) on the [Setup] menu when taking pictures**.

Battery and power source

The camera cannot be operated even when it is turned on. The camera turns off immediately after it is turned on.

- The battery is exhausted. Charge the battery.
- If you leave the camera on, the battery will be exhausted.
  → Turn the camera off frequently by using the [Economy] etc. (P44)

This unit is turned off automatically.

- If you connect to a TV compatible with VIERA Link with an HDMI micro cable (optional) and turn off the power on the TV with the remote control for the TV, the power on this unit also turns off.
  → If you are not using VIERA Link, set [VIERA Link] to [Off]. (P46)

Card/battery door does not close.

- Insert the battery securely all the way in. (P12)

Recording

The picture cannot be recorded.

- Is the mode set to [Rec] Mode? (P20)
- Is there any memory remaining on the built-in memory or the card?
  → Delete the pictures which are not necessary to increase the available memory. (P34)
- You may not be able to record for a short while after turning the power [ON] when using a large capacity card.

The recorded picture is whitish.

- The picture can become whitish if there is dirt e.g. fingerprints on the lens.
  → If the lens is dirty, turn on the camera, eject the lens barrel and gently wipe the lens surface with a soft dry cloth.

The recorded picture is too bright or dark.

→ Check that the exposure is correctly compensated. (P86)
- Setting the [Min. Shtr Speed] to faster speed might make the picture darker.
  → Set the [Min. Shtr Speed] (P88) to slower speed.

Multiple pictures are taken at one time.

→ Set [Auto Bracket] (P87) or [Burst] (P90) of the [Rec] Mode menu to [Off].
- Has [Hi-Speed Burst] (P62) or [Flash Burst] (P63) in Scene Mode been set?

The subject is not focused properly.

- The focus range varies depending on the Recording Mode.
  → Set to the proper mode for the distance to the subject.
- The subject is beyond the focus range of the camera. (P22)
- There is camera shake (jitter) or the subject is moving slightly. (P19)

The recorded picture is blurred.
The Optical Image Stabilizer is not effective.

→ The shutter speed becomes slower when pictures are taken in dark places so hold the camera firmly with both hands to take the pictures. (P19)
→ When taking pictures at a slow shutter speed, use the self-timer. (P76)

Taking pictures using Auto Bracket is not possible.

- Is there any memory remaining on the built-in memory or the card?

The recorded picture looks rough.
Noise appears on the picture.

- Is the ISO sensitivity high or the shutter speed slow?
  (ISO sensitivity is set to [Auto] when the camera is shipped. Therefore, when taking pictures indoors etc. noise will appear.)
  → Decrease the ISO sensitivity. (P79)
  → Set [Color Mode] to [Natural]. (P90)
  → Take pictures in bright places.
- Has [High Sens.] or [Hi-Speed Burst] in the Scene Mode been set? If so, the resolution of the recorded picture decreases slightly because of high sensitivity processing, but this is not a malfunction.

The brightness or the hue of the recorded picture is different from the actual scene.

- When recording under fluorescent or LED lighting fixture etc., increasing the shutter speed may introduce slight changes to brightness and color. These are a result of the characteristics of the light source and do not indicate a malfunction.

When recording pictures or half-pressing the shutter button, reddish stripes may appear on the LCD monitor. Alternatively, part or all of the LCD monitor may turn a reddish color.



- This is a characteristic of CCDs, and it appears when the subject has a bright part. Some unevenness may occur in the surrounding areas, but this is not a malfunction.
  It is recorded in motion pictures but is not recorded on still pictures.
- It is recommended that you take pictures while taking care not to expose the screen to sunlight or any other source of strong light.

Motion picture recording stops in the middle.

- Use a card with SD Speed Class with “Class 4” or higher when recording motion pictures.
- Depending on the type of the card, recording may stop in the middle.
  → If motion picture recording stops during use of a card of at least “Class 4” or if you use a card that has been formatted on a PC or other equipment, the data-writing speed is lower. In such cases, we recommend that you make a backup of the data and then format (P47) the card in this unit.

The subject cannot be locked. (AF track fails)

- If the subject contains sections that differ in color to the surroundings, touch those sections or the main colors of the subject to set the AF frame (P52).

Lens

Recorded image may be warped, or nonexistent color is surrounding the subject.

- It is possible that the subject may be warped slightly, or the borders get colored, depending on the zoom magnification, due to the characteristics of the lens. Also, the peripherals of the image might look warped because the perspective is enhanced when the wide angle is used. This is not a malfunction.

LCD monitor

The LCD monitor becomes darker or brighter for a moment.

- This phenomenon appears when you press the shutter button halfway to set the aperture value and does not affect the recorded pictures.
- This phenomenon also appears when the brightness changes when the camera is zoomed or when the camera is moved. This is because of operation of the automatic aperture of the camera, and it is not a malfunction.

The LCD monitor flickers indoors.

- The LCD monitor may flicker for a few seconds after the power is switched on. This is an operation to correct flicker caused by lighting such as fluorescent lights, LED lights etc. and is not a malfunction.

The LCD monitor is too bright or dark.

- Is [LCD Mode] active? (P42)

Black, red, blue and green dots appear on the LCD monitor.

- This is not a malfunction.
  These pixels do not affect the recorded pictures.

Noise appears on the LCD monitor.

- In dark places, noise may appear to maintain the brightness of the LCD monitor. This does not affect the pictures you are recording.

Flash

The flash is not activated.

- Is the flash setting set to [⊗]?
  → Change the flash setting. (P73)
- The flash is not available when [Auto Bracket] (P87) or [Burst] (P90) in the recording menu are set.

Flash is activated several times.

- The flash is activated twice when Red-Eye Reduction (P73) has been set.
- Has [Flash Burst] (P63) in Scene Mode been set?

Playback

The picture being played back is rotated and displayed in an unexpected direction.

- [Rotate Disp.] (P47) is set to [ ] or [ ].

The picture is not played back.
There are no recorded pictures.

- Is the mode set to [Playback] Mode? (P30)
- Is there a picture on the built-in memory or the card?
  → The pictures on the built-in memory appear when a card is not inserted. The picture data on the card appears when a card is inserted.
- Is this a folder or picture which was processed in the PC? If it is, it cannot be played back by this unit.
  → It is recommended to use the “PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi” software in the CD-ROM (supplied) to write pictures from PC to card.
- Has [Filtering Play] been set for playback?
  → Change to [Normal Play]. (P96)

The folder number and the file number are displayed as [—] and the screen turns black.

- Is this a non-standard picture, a picture which has been edited using a PC or a picture which was taken by another make of digital camera?
- Did you remove the battery immediately after picture-taking or did you take the picture using a battery with a low remaining charge?
  → Format the data to delete the pictures mentioned above. (P47)
  (Other pictures will be deleted as well and it will not be possible to restore them. Therefore, check well before formatting.)

With a Calendar Search, pictures are displayed on dates differing from the actual dates on which the pictures were taken.

- Is the clock in the camera set properly? (P17)
- When pictures edited using a PC or pictures taken by other equipment are searched, they may be displayed on dates differing from the actual dates on which the pictures were taken.

White round spots like soap bubbles appear on the recorded picture.

- If you take a picture with the flash in a dark place or indoors, white round spots may appear on the picture caused by the flash reflecting of particles of dust in the air. This is not a malfunction.
  A characteristic of this is that the number of round spots and their position differ in every picture.



Red part of the recorded image has changed color to black.

- When Digital Red-Eye Correction ([ϟA], [ϟ], [ϟS]) is in operation, if you take a picture of a subject with red color surrounded by a skin tone color, that red part may be corrected to black by the Digital Red-Eye Correction function.
  → It is recommend to take the picture with Flash Mode set to [ϟA], [ϟ] or [⊘], or [Red-Eye Removal] on the [Rec] Mode menu set to [Off]. (P91)

[Thumbnail is displayed] appears on the screen.

- Is it a picture that has been recorded with other equipment? In such cases, these pictures may be displayed with a deteriorated picture quality.

The sound of the recorded motion pictures sometimes breaks up.

- This unit automatically adjusts the aperture during motion picture recording. At such times, the sound may break up. This is not a malfunction.

Motion pictures recorded with this model can not be played back on other equipment.

- Motion pictures recorded in [AVCHD] or [MP4] may be played back with poor picture or sound quality or playback may not be possible even when played back with equipment compatible with these formats. Also, the recording information may not be displayed properly.

About the Wi-Fi function

It cannot connect to the wireless LAN. Radio waves get disconnected.

- Use within the communication range of the wireless LAN network.
- Connection types and security setting methods are different depending on the wireless access point (broadband router).
  → Refer to the operating instructions of the wireless access point (broadband router).
- When the radio waves are interrupted, the condition may improve by moving the location or changing the angle of the wireless access point (broadband router).
- It may not automatically connect when the network SSID of the wireless access point (broadband router) is set not to broadcast.
  → Set the network SSID of the wireless access point (broadband router) to broadcast.
- Is any device, such as microwave oven, cordless phone, etc., that uses 2.4 GHz frequency operated nearby?
  → Radio waves may get interrupted when used simultaneously. Use them sufficiently away from the device.
- Is the 5 GHz/2.4 GHz switchable wireless access point (broadband router) connected to other equipment using the 5 GHz band?
  → The use of a wireless access point (broadband router) that can use 5 GHz/2.4 GHz simultaneously is recommended. It cannot be used simultaneously with this camera if it is not compatible.

Wireless access point (broadband router) is not displayed. Or it cannot be connected.

- Perform [Add wireless AP] in the [Wireless settings] of the [Wi-Fi Setup] menu.
- Check if the wireless access point (broadband router) to connect is in operating state.
- The wireless access point (broadband router) may not display or may not connect when the radio waves of the wireless access point (broadband router) are weak or depending on the radio wave condition.
  → Perform the connection closer to the wireless access point (broadband router).
- It may not display even if the radio waves exist depending on the setting of the wireless access point (wireless router).
  → Check the settings of the wireless access point (broadband router).
- The wireless access point (broadband router) may not be found depending on the radio wave condition.
  → Perform the [Search Wireless AP]. (P130)
- Is the network SSID of the wireless access point (broadband router) set not to broadcast?
  → It may not be detected when it is set not to broadcast. Enter and set the network SSID. (P130)
- Try the following:
  → Move this unit (especially the Wi-Fi transmitter) closer to the wireless access point (broadband router)
  → Remove the obstacles between this unit and the wireless access point (broadband router)
  → Change the direction of this unit

The wireless access point (broadband router) cannot be registered.

- The wireless access points (broadband router) that can be registered are up to eight.
  → Delete the unnecessary wireless access point (broadband router).

It takes long time every time to connect to a smartphone.

- It may take longer time to connect depending on the Wi-Fi connection setting of the smartphone, but it is not a malfunction.

This unit is not displayed in the Wi-Fi setting screen of the smartphone. It takes time to setup the connection.

→ Select [Wireless AP Info] in [Smartphone connection] from the [Wi-Fi Setup] menu. (P132)
→ Try switching the ON/OFF of the Wi-Fi function in the Wi-Fi settings of the smartphone.

I have forgotten the login ID or password for the “LUMIX CLUB”.

- Check the information in the login screen of “LUMIX CLUB”.
  http://lumixclub.panasonic.net/eng/c/

I do not have a wireless access point (broadband router) at my home, but I would like to perform service user registration of the “LUMIX CLUB”.

- Service user registration for the “LUMIX CLUB” is not possible in the environment without a wireless access point (broadband router).

Multiple images in the built-in memory cannot be transmitted.

- The image in the built-in memory can only be transmitted one at a time.
- To transmit multiple images at once, transmit after copying the images to a card (P112).

Images cannot be transmitted to the WEB service.

- WEB service server or the network may be busy.
  → Try again after a while.

It takes time to transmit an image to the WEB service.

- Is the size of the image too large?
  → Transmit after making the size of the still picture smaller with [Upload Size] (P133).
  → Transmit after dividing the motion picture with [Video Divide] (P104).
- It may take longer time to transmit when distance to the wireless access point (broadband router) is far.
  → Transmit closer to the wireless access point (broadband router).

The image that was supposed to have uploaded to the WEB service is not there.

- Upload may not complete when it is disconnected while transmitting the image.
- It may take some time after uploading the image to be reflected in the WEB service depending on the status of the server.
  → Wait for a while and try again.
- Transmission status can be checked in WEB destination settings by logging into the “LUMIX CLUB”.

I would like to return the image in the WEB service to the camera.

- The images in the WEB Service cannot be saved (downloaded) to this unit. Do not delete the uploaded images, and make a backup of them.

I cannot display or delete the images uploaded to the WEB service by this unit.

- The images uploaded to the WEB service cannot be displayed or deleted by this unit.
  → Perform the task using a smartphone or a PC.

Your “LUMIX CLUB” login ID and password were deleted after sending the camera in to be repaired.

- The settings stored in the camera may be deleted depending on the type of repair.
  → Always make a copy of important settings.

There is an image that could not be transmitted.

- Is the size of the image too large?
  → Divide the motion picture using [Upload Size] (P133).
  → Make the size of the still picture smaller using [Video Divide] (P104).
- Capacity or number of images in the WEB service is full.
  → Login to the “LUMIX CLUB”, and check the status of the destination by WEB destination settings.

I have forgotten the password for the Wi-Fi.

→ Execute the [Reset Wi-Fi Settings] in the [Setup] menu. (P45)
→ However, all the information set with the [Wi-Fi Setup] menu, such as the wireless access point (broadband router), login setting of the “LUMIX CLUB”, etc., will also be reset.

Transmission of the image fails midway.

- Is the size of the image too large?
  → Transmit after making the image the size of the still picture smaller with [Upload Size] (P133).
  → Transmit after dividing the motion picture with [Video Divide] (P104).
  → Image cannot be transmitted when the battery indicator is flashing red.

Motion picture cannot be transmitted.

- Only the motion pictures recorded in [MP4] can be transmitted.
- Is the size of the image too large?
  → Transmit after dividing the motion picture with [Video Divide] (P104).

TV, PC and printer

The picture does not appear on the television.

- Is the camera connected to the TV correctly?
  → Set the TV input to External Input Mode.

The display areas on the TV screen and the camera's LCD monitor are different.

- Depending on the TV model, the pictures may be extended horizontally or vertically or they may be displayed with their edges cut off.

The motion pictures cannot be played back on a TV.

- Are you trying to play back the motion pictures by directly inserting the card in the card slot of the TV?
  → Connect the camera to the TV with the AV cable (optional), or with the HDMI micro cable (optional), and then play back the motion pictures on the camera. (P144)

The picture is not displayed fully on the TV.

→ Check [TV Aspect] setting. (P46)

VIERA Link does not work.

- Is it connected properly with the HDMI micro cable (optional)? (P144)
  → Confirm that the HDMI micro cable (optional) is firmly fitted.
- Is the [VIERA Link] on this unit set to [On]? (P46)
  → Depending on HDMI terminal of the TV, the input channel may not switch automatically. In this case, use the remote control for the TV to switch input. (For details on how to switch input, please read the operating instructions for the TV.)
  → Check the VIERA Link setting on the connected device.
  → Turn the power to the unit off and then back on again.
  → Set [VIERA Link] to [Off] on the TV and then turn it back to [On]. (Refer to the operating instructions of the TV for details.)

The picture cannot be transferred when the camera is connected to a PC.

- Is the camera connected to the PC correctly?
- Is the camera recognized by the PC correctly?
  → Set to [PC] in [USB Mode]. (P45, 154)

The card is not recognized by the PC. (The built-in memory is recognized.)

→ Disconnect the USB connection cable. Connect it again while the card is inserted in the camera.
→ If there are two or more USB terminal on a single PC, try connecting the card to another USB terminal.

The card is not recognized by the PC. (SDXC memory card is used)

→ Check if your PC is compatible with SDXC memory cards.
http://panasonic.net/avc/sdcard/information/SDXC.html
→ A message prompting to format the card may be displayed when connecting, but do not format.
→ If the [Access] displayed on the LCD monitor does not disappear, disconnect the USB connection cable after turning off the power.

There is a problem trying to upload to YouTube or Facebook.

→ Confirm that the login information (login ID/user name/mail address/password) is correct.
→ Confirm that the PC is connected to the Internet.
→ Confirm that resident software such as virus protection software or firewall is not blocking access to YouTube or Facebook.
→ Confirm with YouTube or Facebook as well.

The picture cannot be printed when the camera is connected to a printer.

• Pictures cannot be printed using a printer which does not support PictBridge.
→ Set to [PictBridge(PTP)] in [USB Mode]. (P45, 157)

The ends of the pictures are cut at printing.

→ When using a printer with a Cropping or borderless printing function, cancel this function before printing. (For details, refer to the operating instructions for the printer.)
→ When you order photo studios to print pictures, ask the photo studio if the pictures can be printed with both ends.

Others

An unreadable language was selected by mistake.

→ Touch [MENU], select the [Setup] menu icon [🔧]. Then select [] to set the desired language. (P48)

A red lamp sometimes turns on when the shutter button is pressed halfway.

• In dark places, the AF Assist Lamp lights red to make it easier to focus on a subject.

The AF Assist Lamp does not turn on.

• Is [AF Assist Lamp] on the [Rec] Mode menu set to [On]? (P91)
• The AF Assist Lamp does not turn on in bright places.

The camera becomes warm.

• The surface of the camera may become warm during use. This does not affect the performance or quality of the camera.

The lens clicks.

- When the brightness changes due to zoom or camera movement etc., the lens may click and the picture on the screen may drastically change. However, the picture is not affected. The sound is caused by the automatic adjustment of the aperture. This is not a malfunction.

The clock is reset.

- If you do not use the camera for a long time, the clock may be reset.
  → [Please set the clock] message will be displayed; please re-set the clock. (P17)

Zooming stops instantaneously.

- When using the Extended Optical Zoom or the Intelligent Zoom, the zooming action will stop temporarily. This is not a malfunction.

Zoom does not go up to maximum magnification.

- Is the camera set to Macro Zoom Mode? (P84)
  Maximum zoom during Macro Zoom Mode is 3× Digital Zoom.

The file numbers are not recorded consecutively.

- When you perform an operation after taking a certain action, the pictures may be recorded in folders with different numbers from the ones used prior to the operation.

The file numbers are recorded in ascending order.

- If the battery was inserted or removed without first turning the camera's power off, the folder and file numbers for the pictures taken will not be stored in the memory. When the power is then turned back on and pictures are taken, they may be stored under file numbers which should have been assigned to previous pictures.

A different thing gets selected from what you touched.

- Perform the calibration (P48).

When the camera is left alone, the slide show is suddenly displayed.

- This is [Auto Demo] to introduce the features of this unit.

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